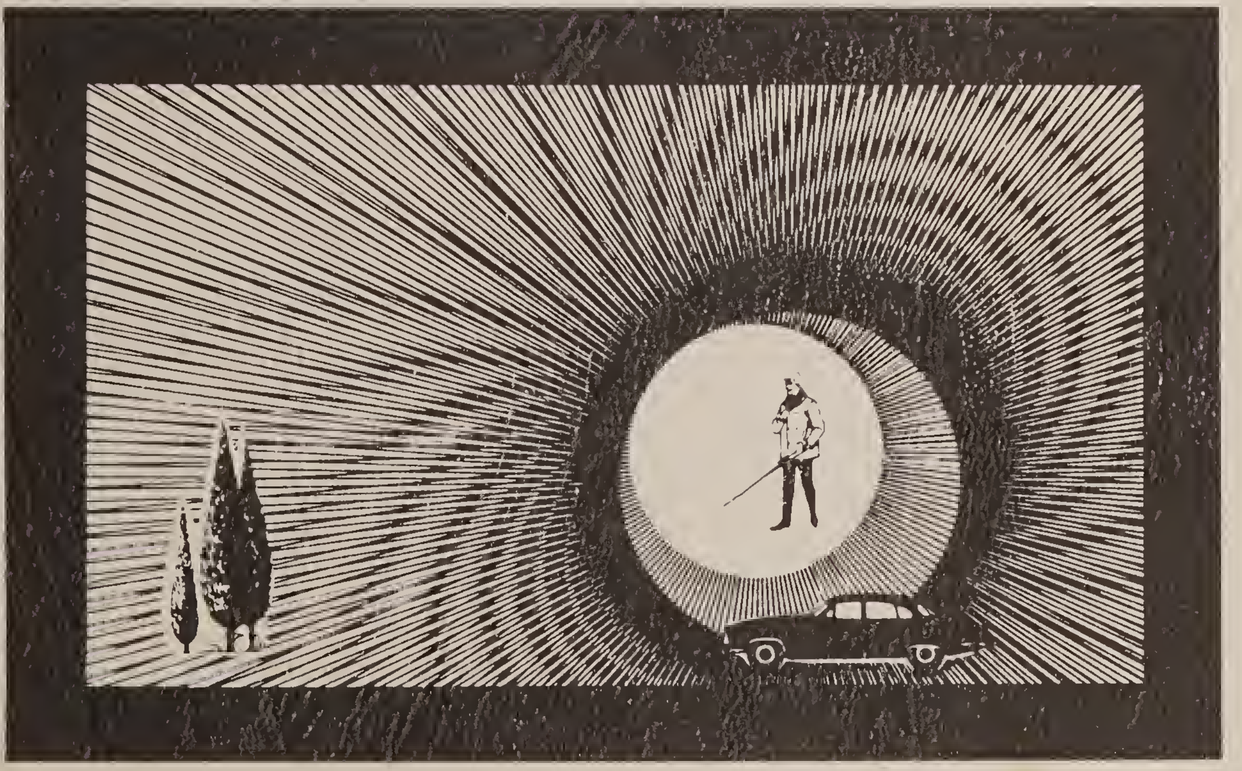
ENVIRONMENTAL SENSING SELECTION AND MATCHING

ESSETS



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ENVIRONMENTAL SENSING SELECTION AND MATCHING

ESSETS

Environmental
Sensing
Selection
Evaluation and
Training
System

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American Institutes for Research
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INTRODUCTORY COMMENTS AND ACKNOWLEDGEMENTS

Having been continuously involved for about five years with various aspects of research and development related to the blind and visually handicapped, I am impressed with how much we do know, and could better share, about ways blind persons' daily living skills and orientation and mobility skills can be enhanced. At the same time, I believe that progress has been hampered by a lack of methodological consistency in training and evaluation.

The ESSETS materials have been developed with the hope that evaluation and training could become more systematic and more effective. It is fair to say that they could not have reached their present level of detail and comprehensiveness without the expertise of Carla deHaas, whose orientation and mobility background and electronic travel aid familiarity have been invaluable. Similarly, the appearance of these materials (intended for eye appeal as well as ease of use) is in large measure the result of the secretarial skills of Angelica Hampel and the graphics efforts of Len Lutomski and Don Reed. All revisions were coordinated and blended by Anatta Blackmarr, Barbara Pletcher, and Barbara Milligan.

The following individuals affiliated with other organizations have been helpful to the project in a variety of ways. We thank them for their suggestions, efforts, and support. Field tryouts: Eddie Robinson, South Carolina Commission for the Blind; Bob Scheffel and Sam Hines, Atlanta Area Services for the Blind; Joey Baumbach, Northern Arizona University; Carol Seidberg, Arizona Industries for the Blind, Phoenix. Reviews of materials were given by Berdell Wurzburger, San Francisco State University, and Lee Farmer, Veterans Administration. Additional helpful information was provided by Bob Smith, Boston College; Stan Suterko, Western Michigan University; and Greg Goodrich, Veterans Administration.

Within the narrative text portions of this material we have used both the masculine and feminine forms of the pronoun wherever possible. However, readers will note that within the exercises we have faced restrictions of space and format that have precluded our use of the he/she variant of terminology. For expedience, we have chosen to use the masculine in such instances. In no way do we mean to imply sex bias through this choice.

It should be kept in mind that though these materials were developed primarily for mainstreamed secondary and college-level blind individuals they could also be used with adult blind persons receiving instruction through rehabilitation agencies. Some adaptation of the materials for young children (i.e., age 5) has been attempted though it is not reflected in these published materials. Certainly, alternative versions of these materials are needed for young children, for the visually impaired geriatric population, and for persons having low vision.

We would hope that systematic techniques that may be developed for those populations will be similar in concept to those utilized in the present ESSETS materials. Eventually, this should lead to a fully comprehensive approach to training and evaluation.

Robert A. Weisgerber, Ed.D.
Project Director

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GENERAL INFORMATION

- ENVIRONMENTAL SENSING AND ELECTRONIC TRAVEL AIDS
- PURPOSE AND POTENTIAL OF THE ESSETS APPROACH
- AN OVERVIEW OF ESSETS COMPONENTS AND ACTIVITIES
- GLOSSARY OF TERMS AND ABBREVIATIONS
- TRAINEE PROFILE SHEET

ENVIRONMENTAL SENSING AND ELECTRONIC TRAVEL AIDS

It's fair to ask, "What is environmental sensing, and what is its relationship to orientation and mobility?" One way of answering this question is to say that the former is a means by which the latter can be accomplished. Another way of answering is to say that an individual's ability to detect and differentiate elements in his or her surroundings (environmental sensing) is a root or basic skill which can be utilized in many different ways for a variety of end purposes, including establishing one's position within the environment (orientation) and purposefully moving within the environment (mobility), but also in other living skill areas.

Electronic travel aids (ETAs) are devices which have been engineered to apply new technology to the task of sensing the environment and thus presumably facilitate orientation and mobility activities. However, devices developed with one kind of application in mind are sometimes found to have additional uses.

To use a rather narrow example, envision a conversation between a blind and a sighted person. The blind person, having learned the whereabouts of the sighted person when that person spoke, is able to directly address or "look" at the source of that sound. If the sighted person moves but doesn't speak there is a good chance the blind person will continue chatting with empty space. However, the wearer of the Sonicguide glasses (one type of ETA) would know that the person had moved, and where he or she had moved, and again face the sighted individual.

It seems reasonable to expect that sensing devices could have a beneficial effect on job-related activities and on the self-help skills associated with daily living. Exactly what sorts of benefits can be obtained by ETAs is not established at this time; the approach suggested here may help to discover them.

Of course, the use of ETAs is not a guarantee of success, nor can it be taken for granted that they will automatically benefit any particular person. Some possible effects of ETA use, both positive and negative, are:

POSITIVE	NEGATIVE
1. Increased opportunity for social contact and involvement.	1. Unusual appearance of device may inhibit some social acceptance.
2. More rapidly acquired and more comprehensive orientation to one's physical environment.	2. Audible signals could be disturbing in some contexts.
3. Greater efficiency in mobility tasks.	3. Less likelihood of spontaneous offers of assistance from others.
4. Increased range and variety of accessible travel destinations.	4. Overdependence on signals for guidance information with consequent risks.

The above points merely suggest the realistic approach that should be taken when beginning the sequence of ETA evaluation and training. In simple terms, the instructor should explain to the blind person the risks as well as the possible benefits associated with ETA training. If the individual expresses continued interest, the approach suggested in these ESSETS provides a step-by-step plan for developing that person's skills to the fullest potential.

PURPOSE AND POTENTIAL OF THE ESSETS APPROACH

ESSETS is a short way of referring to the Environmental Sensing, Selection, Evaluation, and Training System that AIR has devised to help orientation and mobility instructors effectively match trainees and electronic travel aids, identify trainee needs, provide personalized training, and evaluate newly developed skills.

The ESSETS approach involves two sets of evaluation materials[*] and one set of instruction materials[†] which, if followed according to recommendations, will introduce a new level of consistency across various training locations. A companion ESSETS compendium provides a logical unifying framework for behaviors and skills that are thought to be involved in environmental sensing.[°]

As a result, (1) instructors can more fully appreciate and be aware of how their own program compares with others, (2) trainees can feel more assured that their needs will be given appropriate attention, and (3) the field at large will be able to accumulate much needed mergeable data for research purposes.

This latter point merits further explanation. To date, the O&M field has had to depend upon research findings that are based on ad hoc questions, subjective judgments of instructors, limited numbers of cases analyzed, and nonsystematic selection of trainees, training sites, and training experiences. While this may seem to be expedient, conclusions based on such data tend to be unreliable.

While most field studies have had these limitations, laboratory based studies have more frequently had adequate numbers of cases, careful control, and have offered clearer conclusions. Unfortunately, problems arise in trying to relate laboratory findings to everyday experiences in the field and priorities in life itself.

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[*] Environmental Sensing: Selection and Matching and Environmental Sensing: Evaluation of Attained Performance.

[†] Environmental Sensing: Training Guidelines.

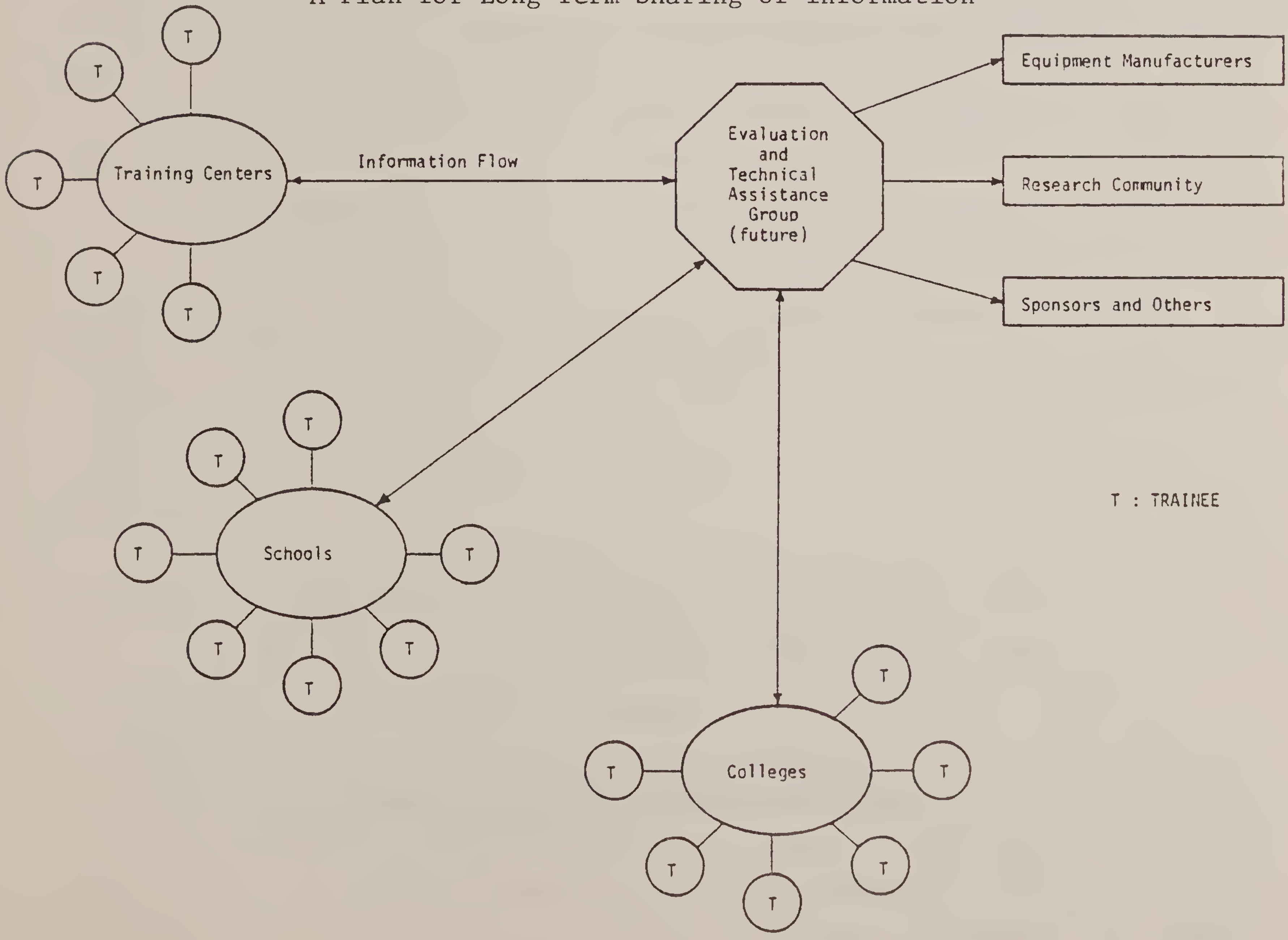
[°] Environmental Sensing: Reference Compendium

The ESSETS approach, if widely adopted and implemented, could enable the pooling of information from a cross section of training locations across the country to allow meaningful and practical analysis and interpretation. This information would naturally lead to validation or further refinement of specific exercises now contained in the ESSETS approach.

To the extent that a number of schools, colleges, and training centers (e.g., rehabilitation centers, agencies) utilize the approach and share their separate results, their accumulated experience could become a valuable resource for other concerned groups, such as equipment manufacturers who seek information that will help them to develop improved technology and for sponsors of service programs who want to know how trainees were benefited. Diagrammatically, the process model will be as follows.

The ESSETS Process Model

A Plan for Long Term Sharing of Information



AN OVERVIEW OF ESSETS COMPONENTS AND ACTIVITIES

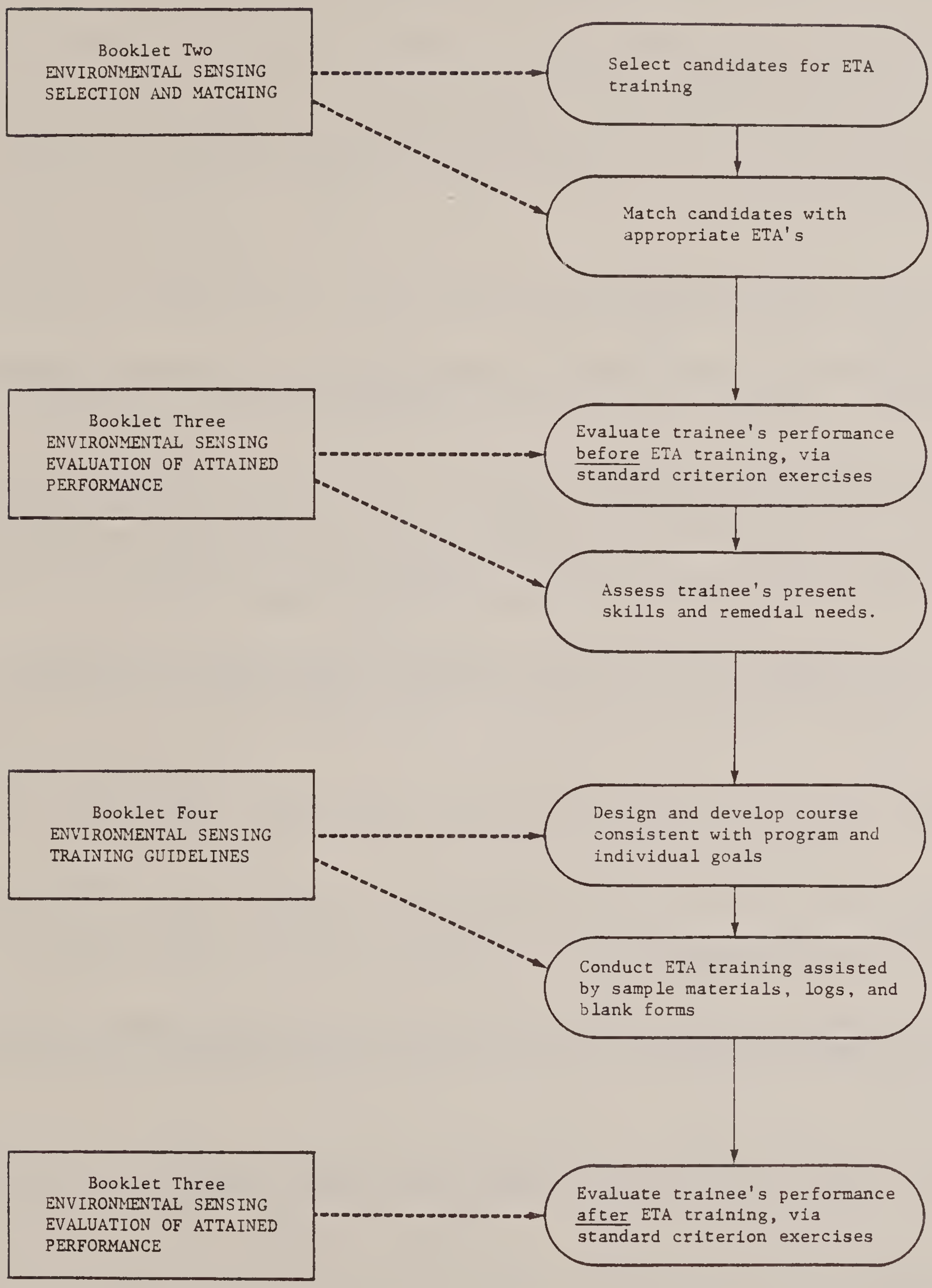
The Environmental Sensing, Selection, Evaluation, and Training System, or ESSETS, has four components, the first of which is a manual entitled Environmental Sensing Reference Compendium. In its 100 pages, plus glossary and index, it presents environmental sensing skills and their components in outline form, organized under eight topical areas including: Topical Area I, Relating Body-Image and Surrounding Space; Topical Area II, Perceiving and Defining the Environment; Topical Area III, Relating Personal Movement to Environmental Factors; Topical Area IV, Relating Personal Movement to Distance, Time, and Rate; Topical Area V, Compiling a Cognitive Map; Topical Area VI, Planning, Executing, and Assessing Travel Routes; Topical Area VII; Optimizing Travel Performance; Topical Area VIII, Analyzing Personal Attributes for Greater Independence.

The second component, a manual entitled Environmental Sensing: Selection and Matching, has two parts. Part A emphasizes selection of ETA-training candidates. It includes material on "Physical/Medical Factors," "Internal Motivations," "External Influences," "Cost Considerations," and "Readiness Assessment." Part B emphasizes matching the individual trainee with the ETA best suited to him or her. It consists of a series of Matching Trials for each of five ETAs.

Component three, entitled Environmental Sensing: Evaluation of Attained Performance, consists of a series of standard criterion exercises that offer a means of contrasting the trainee's performance before training, with his or her performance after training. When used in combination with scores in the Matching section of component two, these measures also differentiate existing skills from skills to be emphasized during training. Because of their design, the ESSETS exercises can be implemented at a variety of training locations, using simple, readily available set-ups.

Component four, entitled Environmental Sensing: Training Guidelines, involves sample lesson plans and general procedures for developing instructional strategies. It builds on information from components two and three. Emphasis is given to self-orientation skills (that is, the ability to orient oneself to a new environment independent of formal instruction), and to cooperative goal-setting by the trainee and instructor.

ESSETS COMPONENTS AND ACTIVITIES MODEL


Booklet Two
ENVIRONMENTAL SENSING
SELECTION AND MATCHING
Select candidates for ETA training
Match candidates with appropriate ETA's
Booklet Three
ENVIRONMENTAL SENSING
EVALUATION OF ATTAINED PERFORMANCE
Evaluate trainee's performance before ETA training, via standard criterion exercises
Assess trainee's present skills and remedial needs.
Booklet Four
ENVIRONMENTAL SENSING
TRAINING GUIDELINES
Design and develop course consistent with program and individual goals
Conduct ETA training assisted by sample materials, logs, and blank forms
Booklet Three
ENVIRONMENTAL SENSING
EVALUATION OF ATTAINED PERFORMANCE
Evaluate trainee's performance after ETA training, via standard criterion exercises

Note: Booklet One, ENVIRONMENTAL SENSING REFERENCE COMPENDIUM, is a companion document which can serve as a useful reference for environmental sensing behaviors and processes throughout.

GLOSSARY OF TERMS AND ABBREVIATIONS

For purposes of clarity and uniform understanding of these materials certain terms need to be defined. These terms include:

- Arc refers to the pattern that the cane tip makes when touch technique is being used.
- Arm's-reach distance refers to the distance at which the individual could touch an object directly ahead by fully extending one arm (without the cane).
- Clue refers to an aspect of the environment which can be perceived and interpreted meaningfully.
- Cue refers to an aspect of the environment which is perceived and responded to without necessitating conscious interpretation.
- Deviant Peripatetic Behavior refers to deliberate or accidental pursuit of a line of travel which is conspicuously different from the line of travel which a sighted traveler would use to reach the same objective (e.g., veering from ISL to OSL in order to confirm landmarks; not veering to avoid an in-path obstacle; etc.)
- Familiarization refers to the process of learning the location, spatial relationship and nature of the stable elements of a given environment.
- Landmark refers to a distinguishing and readily detectable feature of the environment which serves as a reference point.
- Matching refers to the act of selecting a specific ETA for a specific student on the basis of that student's relative needs, capabilities, interests and limitations.
- Self-familiarization refers to the act of making oneself familiar with an object, an area, route, or task with which one was previously unfamiliar.
- Self-orientation refers to the act of orienting onself to an unfamiliar area or route, by gathering information and developing a cognitive map.
- Shoreline refers to a lateral boundary or border of a travel path which is distinct from the travel path especially in its surface or structure (see Trailing).
- Trailing refers to the act of maintaining continual sonic, manual, or cane contact with a surface for the purpose of determining one's position in space, locating a specific environmental element or establishing a parallel line of travel (see Shoreline).

For purposes of brevity a number of abbreviations have been used throughout the evaluation protocol and training guidelines. These abbreviations include:

- BC = body contact, deliberately touched or accidentally bumped
- CC = cane contact, deliberate or accidental
- ETA = Electronic Travel Aid
- IM = instructional manuals as supplied by manufacturers
- ISL = inside shoreline, the shoreline farthest from the parallel street (e.g., store fronts)
- LC = The Laser Cane
- MOWAT = The Mowat Sensor
- NOD = The Nottingham Obstacle Detector
- OSL = outside shoreline, the shoreline nearest to the parallel street (e.g., parallel curb)
- PS = The Pathsounder
- SG = The Sonicguide
- T = Trainee
- TG = Training Guidelines as developed for the ESSETS approach
- > < = an indication that previous instructions given in the text of an evaluation exercise should be repeated for a new activity

Note: At a number of points in these materials letters (A) and numbers (01) appear in parentheses. These are intended to serve as codes for later data entry into computer form.

TRAINEE PROFILE SHEET (A)

ID Code # __________________ (01)

Optional
Name: ____ (02)
Address: ____ (03)
____ (04)
Phone #: ____ (05)

Training Center: ____ (06)

Instructor: ____ (07)

Sex: M ____ F ____ (08)

Age: _____ (09)

Age at onset of blindness: _____ (10)

Lives alone: Yes ____ No ____ (11)

Lives with family: Yes ____ No ____ (12)

Lives with sighted persons: Yes ____ No ____ (13)

Lives in special facility (e.g., dorm, agency residence):
Yes ____ No ____ (14)

Cause of blindness (e.g., R.L.F., glaucoma, etc.):

____ (15)

Present visual acuity: (right eye)________ (left eye)_______ (16)

Visual field: ____ (17)

Additional handicaps (check all applicable):

Deaf ____ (left ear ____ right ear ____) (18)

Partial hearing loss ____ (db left ear ____ db right ear ____) (19)

Use of limbs (e.g., paralysis, malformation, etc.): (20)

status, right arm ________________________________

status, left arm ________________________________

status, right leg ________________________________

status, left leg ________________________________

wheelchair-bound ____

palsied ____

Other neurological conditions ____ (21)
(Specify ____)

Muscular condition (e.g., hypertetanus, atrophy) ____ (22)
(Specify ____)

Other health condition ____ (23)
(Specify ____)

Emotionally disturbed ____ (24)

Retarded ____ (25)

Experientially deprived ____ (26)

Other handicap ____ (27)
(Specify ____)

Scope of present travel skills:
Uses long cane ____ (28)
Uses dog guide ____ (29)
Uses ETA ____ (Specify ______________________________) (30)
Uses other travel aid ____ (Specify ________________________) (31)
Travels unescorted at home: Yes ____ No ____ (32)
Travels unescorted within school: Yes ____ No ____ (33)
Travels unescorted home-to-school: Yes ____ No ____ (34)
Travels unescorted in neighborhood: Yes ____ No ____ (35)
Travels unescorted to recreation (other) activities:
Yes ____ No ____ (36)
Travels unescorted at work: Yes ____ No ____ (37)
Travels unescorted home-to-work: Yes ____ No ____ (38)
Travels unescorted when shopping: Yes ____ No ____ (39)
Travels unescorted to non-routine destinations:
Yes ____ No ____ (40)
Travels unescorted to unfamiliar areas: Yes ____ No ____ (41)

SELECTION OF CANDIDATES

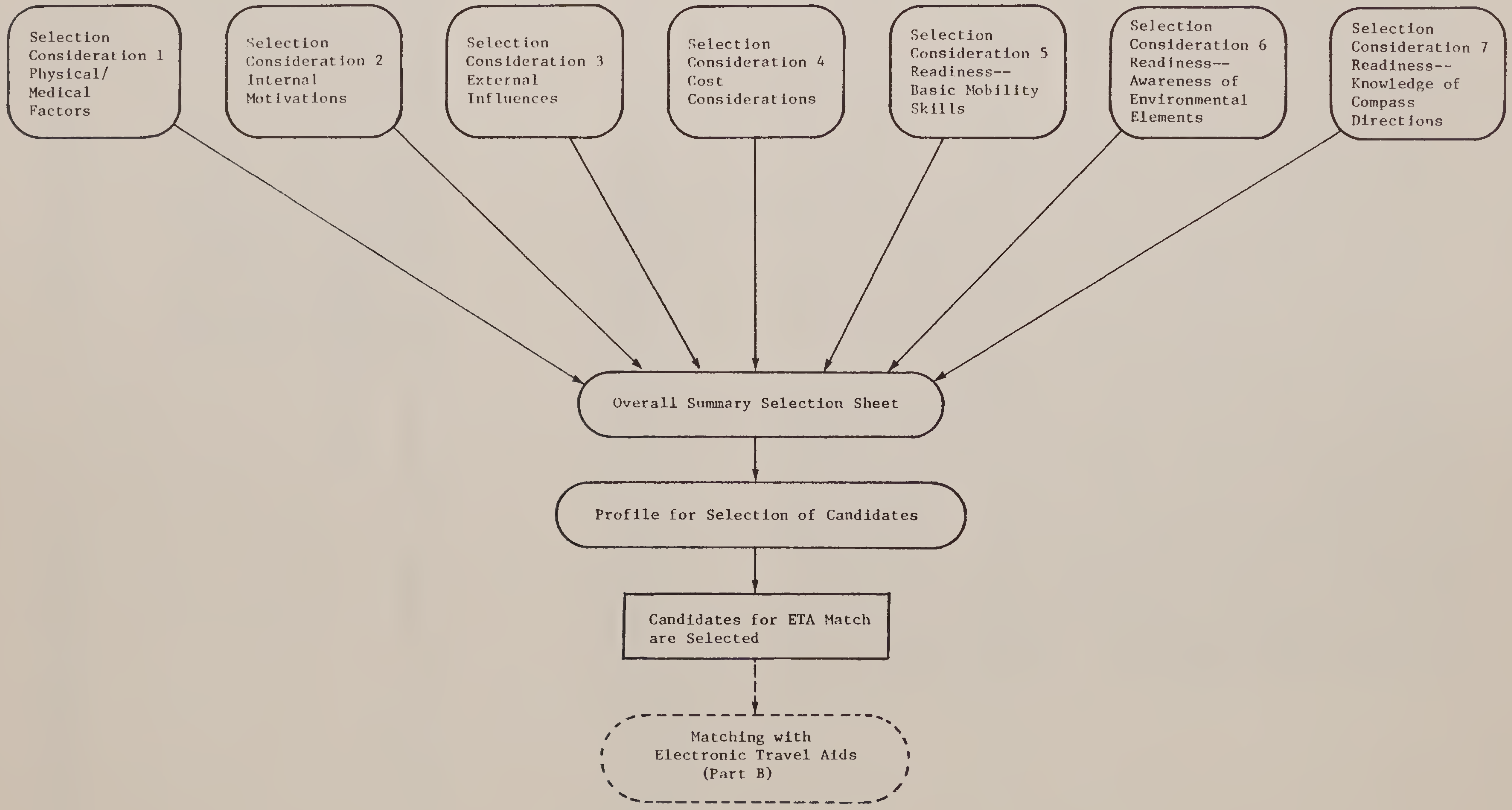
- PHYSICAL/MEDICAL FACTORS
- INTERNAL MOTIVATION
- EXTERNAL INFLUENCES
- COST CONSIDERATIONS
- READINESS ASSESSMENT
- OVERALL SELECTION SCORE SHEET
- PROFILE FOR SELECTION

SELECTION CONSIDERATIONS

Limitations: The following seven evaluative considerations for Selection of Candidates are designed especially for use in the process of selecting candidates for ETA training and determining a trainee-ETA match; they are not intended for any other use.

Purpose and Usage: The tables and checklists offered in this section are intended to help the examiner focus on areas requiring evaluative consideration in selecting candidates; to provide guidelines for exploring these areas in a manner pertinent to the matching process; to suggest ways in which findings can be applied to the student-ETA matching process. For purposes of selecting candidates for ETA training, the results of these considerations for selection of candidates will be charted on the Profile for Selection at the end of PART A.

SELECTION STRATEGY


Selection Consideration 1 Physical/ Medical Factors
Selection Consideration 2 Internal Motivations
Selection Consideration 3 External Influences
Selection Consideration 4 Cost Considerations
Selection Consideration 5 Readiness-- Basic Mobility Skills
Selection Consideration 6 Readiness-- Awareness of Environmental Elements
Selection Consideration 7 Readiness-- Knowledge of Compass Directions
Overall Summary Selection Sheet
Profile for Selection of Candidates
Candidates for ETA Match are Selected
Matching with Electronic Travel Aids (Part B)

Comparison of
Selection Considerations and Reference Compendium Topics

	Reference Compendium Topical Areas and Subtopics							
Selection Considerations	I	II	III	IV	V	VI	VII	VIII
1		A					K	
2							K	A,D
3							K	
4							K	
5	B	A	B				K	
6	B	A,B,C,G	C		C		K	
7			G		D	B	K	

CONSIDERATION 1 • PHYSICAL/MEDICAL FACTORS

(S1)

Limitations: This is not intended to be a comprehensive listing. It does not cover all physical/medical conditions relevant to selection and use of an ETA, nor does it include all relevant compensations and special training considerations. It does list six relevant physical/medical conditions which are frequently encountered.

Rationale: There are some physical/medical conditions which may either preclude use of a given ETA or strongly indicate against its use by the affected candidate.

Examiner Instructions: Scanning the table below from left to right, the examiner will find that the "status" column gives physical/medical status, the "determination" column suggests a means of determining that status, the "Eligible ETA" column indicates which ETAs are eligible on the basis of that status without compensation. The "Compensation Procedure" column suggests ways (if known) in which a seemingly ineligible ETA might be accommodated if considerations other than physical/medical status urged its choice for the candidate.

Though a given ETA may be checked as eligible, instructing the candidate in use of that ETA may involve special training considerations based on the candidate's physical/medical status. The instructor and the candidate should be aware of this before deciding on a trainee-ETA match. The "Special Training Considerations" column is intended to contribute to such instructor awareness. Except where a specific ETA is mentioned, comments in that column apply to all ETAs checked as eligible for the physical/medical status under consideration. However, some ETAs might more readily lend themselves to implementation of certain training needs; for example, those ETAs with most informative tactile displays might be preferred for a candidate who had a significant hearing loss.

STATUS CHECKLIST

STATUS	CHECK IF APPLICABLE	DETERMINATION	ELIGIBLE ETAs
Unilateral hearing loss of 40% or more		Audiogram	Laser Cane Mowat NOD Pathsounder
Unilateral hearing loss of less than 40%		Audiogram	Laser Cane Mowat NOD Pathsounder Sonicguide
Scoliosis or other condition causing inclination of the head		Medical report/ Observation	Laser Cane Mowat NOD
Structural or postural difficulties affecting the plane or angle of the pectoral area		Medical report/ Observation	Laser Cane Mowat NOD Sonicguide
Need to employ a wheelchair for mobility		Observation	Pathsounder Sonicguide
Advanced diabetic neuropathy		Medical report/ Observation	Laser Cane NOD Pathsounder Sonicguide

ETAs which remain eligible are:
(check if applicable)

(01) ☐ Laser Cane (02) ☐ Mowat (03) ☐ NOD (04) ☐ Pathsounder (05) ☐ Sonicguide

(S1)

COMPENSATION PROCEDURE	SPECIAL TRAINING CONSIDERATION
	Standard ETA course would require modifications. Special emphasis on use and interpretation of ETA's tactile signals would be necessary.
	If loss is of long-standing, trainee may already have learned to compensate. If not, trainee may be instructed in the nature and extent of loss, and taught to make compensatory interpretation of auditory input. ETA's tactile signals may be used for confirmation of interpretation. Individual SGs can be ordered with factory-built-in compensation, if necessary.
The Model E Pathsounder might be useful if upper torso is only minimally affected. The manufacturer can adjust PS beam angle.	Locating a sound source may be difficult, requiring extra instruction. Instruction in use of tactile stimulators for confirmation of sound-source location might be necessary.
The Model S Pathsounder (head mounted) might be useful. Compensatory padding may often be fitted behind the Model E Pathsounder. The manufacturer can adjust PS beam angle if necessary.	Instruction in compensatory techniques might be necessary to prevent misdirection of LC optics.
A motorized wheelchair, requiring only one hand for operation could allow for use of the Mowat or NOD.	Numerous modifications might be necessary. Chair parts, etc. must not intrude in ETA range.
Use of the Mowat earphone, which converts the Mowat's vibratory signal to audible clicks, could allow for use of this device.	Any ETA providing advanced warning of drop-offs/step-downs is especially recommended. In LC instruction, correct use and interpretation of the "down" signal should be emphasized.

ENTER SCORE:

High ☐ All devices are eligible with no special compensations or training considerations.

Moderate ☐ Some compensation or training considerations would be needed for all devices to remain eligible. (06)

Low ☐ Some devices are ineligible, even with compensation or special training considerations.

(S2)

CONSIDERATION 2 • INTERNAL MOTIVATION

Limitations: While the positive effects of motivation are well known, it is not yet established whether persons who already travel successfully without ETAs will be highly motivated to use them on a regular basis.

Rationale: The individual who is self-motivated, independent, and persistent in his approach to things is likely to approach ETA training with a high degree of determination.

Examiner Instructions: Give your best judgement for each of the following questions regarding candidate for ETA matching.

Note: If the examiner wishes assistance in answering these questions, it may be helpful to check with all or some of the following:

- the student's regular O&M instructor
- the student's resource room teacher
- the student's classroom teacher(s)
- the student's counselor
- the student's family
- the student's employer

(S2)

Scoring and Interpretation: "Yes" or "no" scores should be entered in the blank to the right of each checklist item. After completing all the items, count all the "yes" scores only, and fill in the appropriate "Total Score" blank at the bottom of the scoring column. The student's status as a candidate for ETA match and instruction, as suggested by this total score, is indicated beneath the "Total Score" entry.

General Motivation Indicators

Does the student demonstrate the ability to be assertive/aggressive when the situation warrants? ________ (01)

Does he demonstrate persistence of goal orientation in the face of adversity? ________ (02)

Does he demonstrate an inclination toward self-improvement? ________ (03)

Does he demonstrate an eagerness to make his own decisions and choices? ________ (04)

Does he make a real effort to be independent? ________ (05)

Has he indicated job/career aspirations? ________ (06)

O&M Specific Motivation Indicators

Would he travel on his own for reasons other than necessity? ________ (07)

Is he, or does he wish to be an independent traveler? ________ (08)

Does he satisfactorily cope with unwanted assistance/attention from the general public? ________ (09)

Does he sometimes express a desire to broaden his travel boundaries? ________ (10)

Would he show responsibility in caring for a travel aid? ________ (11)

ENTER TOTAL SCORE ______ (12)
(Check appropriate level)

HIGH ☐ 8-11

MODERATE ☐ 5-7 (13)

LOW ☐ 0-4

CONSIDERATION 3 • EXTERNAL INFLUENCES (S3)

Limitations: The existence of external influences that cause frequent travel is well established. However, some motivating external influences, such as a part-time job, may not exist until the individual develops better travel skills.

Rationale: A person who is not frequently required to travel in order to carry out his daily affairs, probably will be less motivated to master, maintain, and use an ETA on any regular basis.

Examiner Instructions: Give your best judgement for each of the following questions regarding the travel needs of the candidate for ETA matching.

Scoring and Interpretation: "Yes' or "no" scores should be entered in the blank to the right of each criterion item. After completing all items, count all the "yes" scores only, and fill in the appropriate "Total Score" blank at the bottom of the scoring column. The student's status as a candidate for ETA match and instruction, as suggested by this total score, is indicated in the section beneath "Total Score" entry.

Does the student's schedule include necessary travel at least 5 times a week? ________ (01)

Does the student's schedule include necessary travel in a variety of locations (e.g., residential, business, campus)? ________ (02)

Does the student's necessary travel often take him into new/unfamiliar areas, or areas with heavy pedestrian traffic? ________ (03)

Does the student do most of his necessary travel independently? ________ (04)

ENTER TOTAL SCORE ______ (05)
(Check appropriate level)

HIGH ☐ 3-4

MODERATE ☐ 2 (06)

LOW ☐ 0-1

CONSIDERATION 4 • COST CONSIDERATIONS (S4)

Electronic Travel Aids currently available at this price range:

$ 10- 500 ____________________ (01)
$ 501-1000 ____________________ (02)
$1001-1500 ____________________ (03)
$1501-2000 ____________________ (04)
$2001-2500 ____________________ (05)
$2501-3000 ____________________ (06)

Limitations: Even when there is no existing arrangement to supply a blind person with an ETA, arrangement can sometimes be made with service clubs, foundations, or other groups to offer full or partial financial sponsorship for purchase of the device. This is especially true if the trainee can demonstrably derive great benefits from ETA use relevant to gainful employment or independent living and this situation is brought to the attention of appropriate groups or organizations.

Rationale: The financial status of the candidate must be taken into consideration before a final decision on ETA matching takes place. Obviously, should the cost of the ETA exceed funds available for its purchase, the match is not feasible.

Examiner Instructions: Please answer the following questions regarding cost considerations relevant to the proposed student-ETA match.

07 Is there an existing arrangement to supply an electronic travel aid that would benefit a blind individual, at little or no cost to that individual? yes ☐ no ☐

If "yes," check whichever applies:

(08) _____agency (specify: ______________________________ (09))
(10) _____service group (specify: ______________________________ (11))
(12) _____school or business (specify: ______________________________ (13))
(14) _____other (specify: ______________________________ (15))

16 Is the blind individual expected to pay all or part of the costs to purchase and maintain specialized equipment which will be used on a personal basis? yes ☐ no ☐

If "yes," check whichever applies:

_____must pay all costs personally (17)

_____must share purchase costs and pay for own maintenance (18)

_____must share costs but only in a token way (19)

_____other (specify: ______________ ______________________ (20))

21 Does the blind individual have the means to pay his or her share of any specialized equipment costs?

yes ☐ no ☐ not applicable ☐

Check whichever applies:

_____all costs (22) _____half of costs (23) _____token or small portion of costs (24)

Total Score Summary

Scoring and Interpretation: Look at your "yes" and "no" entries for 07, 16, and 21, and check the "Total Score Summary" below to correspond with your entries. For example, if you have "yes" on 07, "yes" on 16, and "no" on 21, your score summary will look like this:

Entries in 07	16	21	Check as Appropriate	ETA Eligibility	(25)
Y	N	NA	_____	Any ETA is eligible	
N	Y	Y	_____	Any ETA is eligible	
Y	Y	Y	_____	Any ETA is eligible	
[✓ Y]	[✓ Y]	[✓ N]	✓	Not eligible unless arrangements in 07 can be made	
N	Y	N	_____	Not eligible unless arrangements in 07 can be made	

The student's status as a candidate for ETA match and instruction, as suggested by this "Total Score Summary," is indicated to the right of the blank, in the "ETA Eligibility" column.

Entries in 07	16	21	Check as Appropriate	ETA Eligibility	(25)
Y	N	NA	_____	Any ETA is eligible	
N	Y	Y	_____	Any ETA is eligible	
Y	Y	Y	_____	Any ETA is eligible	
Y	Y	N	_____	Not eligible unless arrangements in 07 can be made	
N	Y	N	_____	Not eligible unless arrangements in 07 can be made	

CONSIDERATION 5 • READINESS ASSESSMENT WITH EMPHASIS ON BASIC MOBILITY SKILLS (S5)

Limitations: This readiness assessment tries to explore the candidate's readiness in a skill area relevant to ETA use. It is not meant to provide an evaluation of all O&M skills which are necessary or desirable for safe and effective travel. The examiner should bear in mind that the nature of the relationship between the ability to perform in this skill area and the ability to experience significant improvement in O&M skills through ETA instruction and use is not yet firmly established. It is hoped that inclusion of readiness assessment in this material will furnish information which can help to define that relationship.

Rationale: Reports from relevant studies, formal and informal, at this early stage, are sometimes contradictory. However, most reports obtained by AIR suggest the following: The potential user of an ETA for O&M purposes should (unless chair-bound) already have good basic cane or dog-guide technique, adequate for safe independent travel; he should also be able to cross streets safely, preferably without needing to solicit aid. Eccentricities in his cane technique are permissable if they are well integrated, do not reduce travel safety, and have proven effective for him in his travel.

Examiner Instructions: If the examiner feels that he can certify the student's performance on a given criterion item without further testing, he may do so by placing a "C" in the blanks next to that item if the item is true of the student and an "NC" (for "not certified") if the item is not true of the student.

If further testing is necessary to score the following items, the examiner should select a route of several blocks in a residential area and several in a small-to-medium business area. The route should include one street crossing in the residential area, and one crossing at a signal-regulated intersection in the business area. It should also require the trainee to use at least one ambient sound cue/landmark. The examiner should observe the student as he executes this route and then score the items.

(S5)

Scoring and Interpretation: Enter a "yes" or "no" score for each item in the blank to the right of that item's number.

After completing all checklist items, add the "yes" responses only and enter them in the "Total Score" blanks at the bottom of the scoring column. The student's status as a candidate for match and instruction with an ETA, as suggested by his total scores on this readiness assessment, is indicated by the "Total Score" entry section.

Student's torso faces forward during travel (e.g., shoulder of cane arm is not thrust forward to extent that torso angles to one side) _____ (01)

Student holds head erect and faces forward unless scanning for ambient sound _____ (02)

Student uses basic cane/dog-guide techniques safely and effectively _____ (03)

Student detects drop-offs/step-downs in time to prevent overstepping them _____ (04)

Student uses ambient sound _____ (05)

Student crosses safely at residential intersection, unregulated or regulated by stop sign _____ (06)

Student crosses safely at signal regulated interaction _____ (07)

Student demonstrates functional understanding of the terms "parallel" and "perpendicular" as used in mobility _____ (08)

ENTER TOTAL SCORE _____ (09)
(Check appropriate level)

HIGH ☐ 6-8

MODERATE ☐ 4-5 (10)

LOW ☐ 0-3

CONSIDERATION 6 • READINESS ASSESSMENT WITH EMPHASIS ON AWARENESS OF ENVIRONMENTAL ELEMENTS TYPICAL OF COMMONLY ENCOUNTERED ENVIRONMENTS (S6)

Limitations: The examiner should bear in mind that the nature of the relationship between the ability to perform in this skill area and the ability to experience significant improvement in O&M skills through ETA instruction and use is not yet firmly established.

Rationale: Reports from relevant studies, formal and informal, at this early state, are sometimes contradictory. However, most reports obtained by AIR suggest the following: The potential ETA user should have at least rudimentary awareness of environmental elements typical of commonly encountered environments, and of the typical spatial relationships among such elements. ETA signals may aggravate the disorientation of the poorly oriented person who, in most situations, cannot make an educated guess as to the nature of the concrete object which is causing the abstract signal.

Examiner Instructions (Part A):

SAY: "I'd like you to tell me the kinds of things you might expect to find if you were traveling in a typical residential area--like driveways, for instance. As you name each thing, tell me whether you would expect it to be in the inside shoreline, that is, the shoreline farthest from the parallel street, or the outside shoreline, that is, the shoreline nearest to the parallel street; or if it could be in both shorelines, sometimes in one, sometimes in the other. Are the instructions clear? Let's begin."

>Allow students 3 minutes to name and indicate location of various environmental elements. Make a tally mark for each typical element the student names, and a tally mark each time he correctly indicates a typical location of a named element.< (SCORE ITEM 01)

EXAMPLE (For examiner only. Do not read this to trainee before completing this readiness assessment.)

Trees - can occur in either shoreline. Grass - in inside shoreline is usually lawn in front of house; in outside shoreline, usually parking strip. Pathways and steps - inside shoreline, lead to houses. Driveways - inside and/or outside shoreline.

Examiner Instructions (Part B):

SAY: "I'd like you to tell me the kinds of things you might expect to find outdoors in a medium business area. As you name each thing tell me whether you would expect it to be in the inside shoreline, or the outside shoreline, or if it could be in both shorelines. Are the instructions clear? Please begin."

Follow instructions for Part A occurring between ><'s

(SCORE ITEM 02)

After the student finishes naming and indicating locations of environmental elements, SAY: "Would you expect the street crossings in a business area to be any different from street crossings that are in a residential area?" If the student says "yes," SAY: "What would the differences be?" (SCORE ITEM 03)

EXAMPLE (For examiner only. Do not read this to trainee before completing this readiness assessment.)

Parking meters - outside shoreline. Poles - outside shoreline, often at corners. Shop fronts - inside shoreline. Newspaper stands - inside or outside shoreline.

Street Crossings: Business Area - increased pedestrian traffic, increased vehicle traffic, increased noise level, signal lights more prevalent than in residential. Residential Area - more unregulated and stop-sign regulated intersections; more likelihood of crossing on "all clear" rather than with parallel traffic, etc.

Scoring and Interpretation: Number scores should be entered in the blanks to the right of each criterion item. After completing items 01 - 03, add their scores together to get a total number score, and fill in the appropriate "Total Score" blank at the bottom of the scoring column. The student's status as a candidate for ETA matching and instruction, as suggested by his total score on this readiness assessment is indicated beneath the total score entry.

NUMBER OF APPROPRIATE ELEMENTS WHICH STUDENT NAMES AND FOR WHICH HE INDICATES PROPER LOCATION (PART A Results) _____ (01)

NUMBER OF APPROPRIATE ELEMENTS WHICH STUDENT NAMES AND FOR WHICH HE INDICATES PROPER LOCATION (PART B Results) _____ (02)

NUMBER OF APPROPRIATE DIFFERENCES INDICATED BY STUDENT (PART B Results) _____ (03)

ENTER TOTAL SCORE _____ (04)

(Check appropriate level)

HIGH ☐ 10 or more

MODERATE ☐ 7-9 (05)

LOW ☐ 0-6

CONSIDERATION 7 • READINESS ASSESSMENT WITH EMPHASIS ON FUNCTIONAL KNOWLEDGE OF COMPASS DIRECTIONS

(S7)

Limitations: The examiner should bear in mind that the nature of the relationship between the ability to perform in this skill area and the ability to experience significant improvement in O&M skills through ETA instruction and use is not yet firmly established.

Rationale: Reports from relevant studies, formal and informal, at this early stage, are sometimes contradictory. However, most reports obtained by AIR suggest the following: The potential ETA use should be directionally oriented, having functional knowledge of compass directions, and should willingly undertake independent travel. Otherwise, the degree of mobility which it is hoped ETA's will expedite is unlikely to take place.

Examiner Instructions: Ask the student the following questions, scoring each as he responds. Explain to the student, before beginning, that you cannot tell him whether an answer is correct or incorrect until the entire exercise is completed. You may repeat a question if the student requests you to do so.

Scoring and Interpretation: "Yes" or "no" scores should be entered in the blanks to the right of each criterion item. After completing all the items, count all the "yes" scores only, and fill-in the appropriate "Total Score" blank at the bottom of the scoring column. The student's status as a candidate for ETA match and instruction, as suggested by his total score in this readiness assessment is indicated in the total score entry.

What is the opposite of North?	Student says South	_____	(01)
If you were facing North and made a 90° turn to the left, what direction would you be facing?	Student says West	_____	(02)
If you are facing South and make a 180° turn, what direction are you facing?	Student says North	_____	(03)
Name a direction that is half-way between North and East.	Student says North-East	_____	(04)

(S7)

You are heading North on "B" Street. You know that when you reach the corner of "B" and 2nd Streets, you must go East on 2nd. Will you turn right or left when you get to 2nd?	Student says right	______	(05)
You are heading East on 2nd Street. Vehicle traffic is on your right. Which side of 2nd Street are you on? (If student seems confused, add the following question.) Are you on the North or the South side?	Student says North	______	(06)
You are going West in a corridor and have to attend a class in the South end of an intersecting corridor. When you reach the intersecting corridor, which way will you turn, right or left?	Student says left	______	(07)
Using compass directions, name the four corners of an intersection. (The order in which corners are named is not important.)	Student says North-East, North-West, South-East, South-West	______	(08)
If you start on a trip going East, and you take 3 ninety degree left turns and a ninety degree right turn, what is your final direction?	Student says West	______	(09)
You are heading South. You stop at an intersection. Traffic is on your left and ahead (in front) of you. Which corner are you on?	Student says North-West corner	______	(10)
You are outside a bus station waiting for a bus. You have your back against the West wall of the building. Which direction are you facing?	Student says West	______	(11)
You are heading North on the East side of the street. You're going towards the intersection where you have to catch a bus. The bus stops on the North-East corner. When you reach that intersection, will you have to cross the street to catch the bus?	Student says he will have to cross street	______	(12)

ENTER TOTAL SCORE
(Check appropriate level) ______________ (13)

HIGH ☐ 8-12 MODERATE ☐ 5-7 LOW ☐ 0-4 (14)

OVERALL SELECTION SCORE SHEET (S8)

(01) • PHYSICAL/MEDICAL FACTORS

☐ The trainee has no physical/medical condition that would affect the use or choice of an ETA.

☐ The trainee has a physical/medical condition that would require some compensation or special training considerations if all devices are to remain eligible.

(Explain) ______________________________

______________________________ (02)

☐ The trainee has a physical/medical condition that would suggest that some of the ETAs are ineligible for him/her.

(Explain) ______________________________

______________________________ (03)

(04) • INTERNAL MOTIVATION

☐ The trainee's personal motivations relevant to ETA use seem high.

☐ The trainee's personal motivations relevant to ETA use seem moderate.

☐ The trainee's personal motivations relevant to ETA use seem low.

(05) • EXTERNAL INFLUENCES

☐ The trainee has a high number of external influences that might lead to greater travel.

☐ The trainee has a moderate number of external influences that might lead to greater travel.

☐ The trainee has a low number of external influences that might lead to greater travel.

(06) • COST CONSIDERATIONS

☐ The trainee or agency can acquire (afford) any device on which training is given.

☐ The trainee or agency can only acquire (afford) certain devices after training.

(Explain) ____

☐ The trainee or agency cannot acquire (afford) any devices after training.

(07) • READINESS IN BASIC MOBILITY SKILLS

☐ The trainee is high in relevant basic mobility skills.

☐ The trainee is moderate in relevant basic mobility skills.

☐ The trainee is low in relevant basic mobility skills.

(08) • READINESS IN AWARENESS OF ENVIRONMENTAL ELEMENTS

☐ The trainee has a high awareness of environmental elements in various contexts.

☐ The trainee has a moderate awareness of environmental elements in various contexts.

☐ The trainee is low in awareness of environmental elements in various contexts.

(09) • READINESS IN FUNCTIONAL KNOWLEDGE OF COMPASS DIRECTIONS

☐ The trainee has high functional knowledge of compass directions.

☐ The trainee has a moderate functional knowledge of compass directions.

☐ The trainee has a low functional knowledge of compass directions.

PROFILE FOR SELECTION OF CANDIDATES (S9)

	High Ratings	Moderate Ratings	Low Ratings
Physical/Medical Factors	○	○	○
Internal Motivation	○	○	○
External Influences	○	○	○
Cost Considerations	○	○	○
Readiness in Basic Mobility Skills	○	○	○
Readiness in Awareness of Environmental Elements	○	○	○
Readiness in Knowledge of Compass Directions	○	○	○

Should the candidate be selected for ETA training?

○ Yes
(01)
○ No

Comment: ______________________________

____

____

____ (02)

Note: High and moderate ratings will normally indicate the desirability of proceeding with training for a candidate. However, the final selection of a candidate is, of course, a local decision. It can be influenced by factors not covered in these materials (such as the ability to match the schedules of the instructor and the student). It is also clear that standards for selection will vary according to local resources, policy, and the overall mission of the training center.

PART B

MATCHING WITH ELECTRONIC TRAVEL AIDS

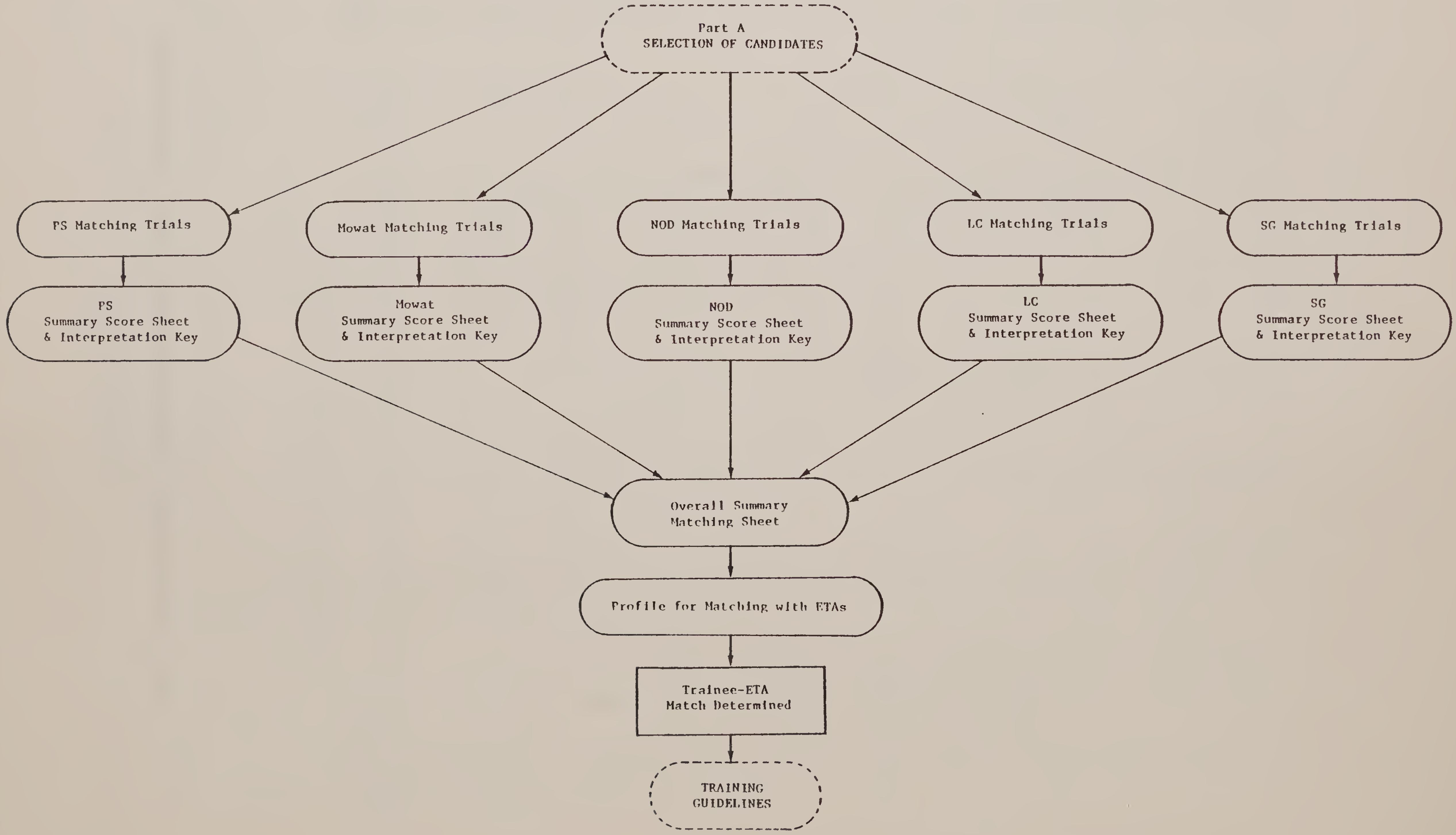
- o MATCHING TRIALS — Pathsounder
- o MATCHING TRIALS — Nottingham Obstacle Detector
- o MATCHING TRIALS — Mowat Sensor
- o MATCHING TRIALS — Laser Cane
- o MATCHING TRIALS — Sonicguide
- o OVERALL MATCHING SCORE SHEET
- o PROFILE FOR MATCHING

MATCHING TRIALS

Limitations: The trials selected for matching purposes are only a few of the possible trials that could have been used. However, it is felt that these trials represent a reasonable sample in that they allow the trainee to try tasks of varying difficulty after only a minimum amount of instruction. Only as many trials are suggested as seem consistent with the complexity of the device and the variety of environmental features that can be distinguished through its proper use.

Purpose and Usage: One of the most important decisions an ETA trainee faces is deciding on a device. To do this intelligently, the trainee should have the opportunity to compare the alternatives. These trials, if fully utilized, give the trainee an opportunity to find what "feels best," what kind of problems he or she may encounter when using the device, and what each device seems to do for him or for her. Of course, the instructor will form similar judgments.

MATCHING STRATEGY


Part A
SELECTION OF CANDIDATES
PS Matching Trials
Mowat Matching Trials
NOD Matching Trials
LC Matching Trials
SG Matching Trials
PS Summary Score Sheet & Interpretation Key
Mowat Summary Score Sheet & Interpretation Key
NOD Summary Score Sheet & Interpretation Key
LC Summary Score Sheet & Interpretation Key
SG Summary Score Sheet & Interpretation Key
Overall Summary Matching Sheet
Profile for Matching with ETAs
Trainee-ETA Match Determined
TRAINING GUIDELINES

Comparison of Matching Trials and Reference Compendium Topics

Reference Compendium Topical Areas and Subtopics

Matching Trials	I	II	III	IV	V	VI	VII	VIII
PS 1							K	
PS 2	B	A					K	
PS 3	B	A,C,D,H					K	
PS 4	B	A,C,D,H	A,B,F				B,K	
PS 5	B	A,D,H	F				A,B,K	
PS 6	A,B	A,B,C,D,H	C,D,E				K	
PS 7							K	
MS 1							K	
MS 2	B	A,D					K	
MS 3	B	A,C,D,H					K	
MS 4	B	A,C,D,H	A,D				K	
MS 5	B	A,B,C,D,H	E				K	
MS 6	B	A,C,D,H					A,B,K	
MS 7	A,B	A,B,C,D,H	C,D,E				K	
MS 8	B	A,D,H	F				A,B,K	
MS 9							K	
NOD 1	B	A,D					K	
NOD 2	B	A,C,D,H					K	
NOD 3	B	A,C,D,H					A,B,K	
NOD 4	B	A,C,D,H	A,D				K	
NOD 5	B	A,B,C,D,H	E				K	
NOD 6	B	A,D,H	F				A,B,K	
NOD 7	A,B	A,B,C,D,H	C,D,E				K	
NOD 8	B	A,C,D,H	A,B,F				K	
NOD 9							K	
LC 1							K	
LC 2							K	
LC 3	A,B	A					K	
LC 4		A					K	
LC 5	B	A,C,D,H	A,D,E				K	

	Reference Compendium Topical Areas and Subtopics							
Matching Trials	I	II	III	IV	V	VI	VII	VIII
LC 6	B	A,C,D,H	A,F				K	
LC 7	B	A,C,D,H					A,B,K	
LC 8	A,B	A,B,C,D,H	C,D,E				K	
LC 9		A,C,D,H	A,F				E,K	
LC 10							K	
SG 1	B	AD					K	
SG 2	A,B	A,C,D,H					K	
SG 3		D,H					K	
SG 4		A,D					K	
SG 5		A,H					A,K	
SG 6	B	A,B,C,H					A,K	
SG 7		A,B,H					A,K	
SG 8	A,B	A,B,C,D,H	C,D,E				B,K	
SG 9	B	A,C,D,H	A,F				K	
SG 10		A,C,D,H	A,F				E,K	
SG 11							K	

Description of the Matching Trials

Matching trials are not tests in the usual sense of the word. Rather, they are structured experiences which afford the candidate a chance to try the device in both simple and semi-complex applications before extensive training takes place. Accordingly, it is generally recommended that the trials be followed in sequence, in their approximate order of complexity. Note that test and retest opportunities are given for the trials. This can help to establish whether too little familiarization with the task may have contributed to the individual's inability to carry out the exercise. Between the test and retest, however, the instructor should refer to the appropriate "Helping Steps" located at the end of each section. After the Matching Trials are completed for each device, transfer the results to the Overall Summary Matching Sheets that follow the last Matching Trial. Then use information from the Overall Summary Sheet to fill out the Profile for Matching at the end of PART B.

The following page gives an example of one Matching Trial (for the Laser Cane) as it would be filled out for a hypothetical candidate. In this case, the individual was retested after Helping Step 5a had been used. A brief comment has been entered to explain the difficulty on the first trial (test).

What can be learned from the Matching Trials? Not only will it be possible to establish overall scores for each device, which are entered on the Summary Score Sheets, but it will be possible to form some idea of which devices are quickly learned and easily put to practical use as well as which devices the individual seems to prefer.

NOTE: The trainee's long cane will not be used in Matching Trials except in those Matching Trials where it is specifically requested in the Equipment box.

Example

MATCHING TRIAL: 5

Describes the situation and intent.

Setting: Indoor. Large obstacle-free room (e.g., gym).

Conditions: After 5 minutes of instruction and practice in paralleling a wall via forward signal use, the trainee will try to parallel a wall for 25', stopping when upward and forward signal combination informs him that he is about 3' from a perpendicular wall. The trainee will then turn and try to align parallel with the wall that was perpendicular as he walks forward for about 25'. The LC range will be set at 5'.

Purpose: 1) Test trainee's ability to parallel a shoreline through interpretation of LC signals.
2) Test trainee's ability to align parallel with a shoreline, through interpretation of LC signals.

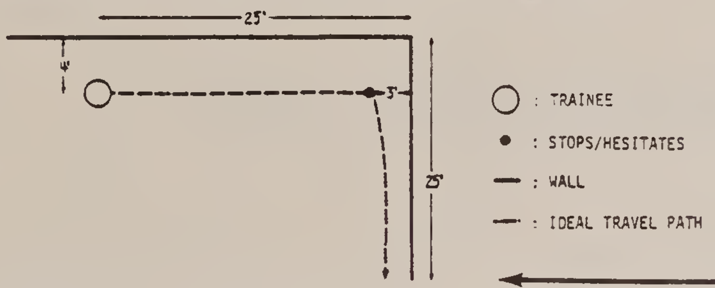
(M4)

Equipment

(LC)

Lists items needed.

Diagram:



Describes the physical layout.

Test Date: 9/6/78

Re-Test Date: 9/13/78

Specify 'Helping Steps' Used: 5a, b

(E01)

Specifies test dates and help required.

Criteria	Test	ReTest
E02 Trainee avoids cane contact with wall	yes	yes
E03 Trainee maintains parallel line of travel over at least 75% of route	yes	yes
E04 Trainee stops before making cane contact with perpendicular wall	no	yes
E05 Trainee establishes a line of travel parallel to wall	yes	yes
E06 Trainee avoids cane contact with wall	no	yes

Describes what happened in the trial.

Notes/Remarks: (E07)

Trainee was rolling wrist, getting too close to parallel wall also - both causing upward signal to fire inappropriately.

Describes special considerations or occurrences.

Examiner's Instructions

Provide trainee 5 minutes instruction and practice in paralleling and aligning parallel with a wall through use of LC signals. Review multiple signal use.

Guide trainee to starting position parallel to a wall 4' to his left.

SAY: "You are now parallel with the wall. I'd like you to walk forward, paralleling the wall. Don't make cane contact with the wall. Use the audible signals instead to keep informed on your position. Take your time. When the signals let you know that you're approaching a perpendicular wall, stop. Are the instructions clear? Please begin." (SCORE ITEMS E02 - E04)

After trainee detects perpendicular wall (via LC signals or cane contact) and stops, SAY: "Now I'd like you to turn so that you are parallel to that wall in front of you, and to walk parallel to it. Try to do this without making cane contact with the wall. Are the instructions clear? Please begin." (SCORE ITEMS E05 - E06)

Gives precise directions.

Construction or Acquisition of Needed Materials

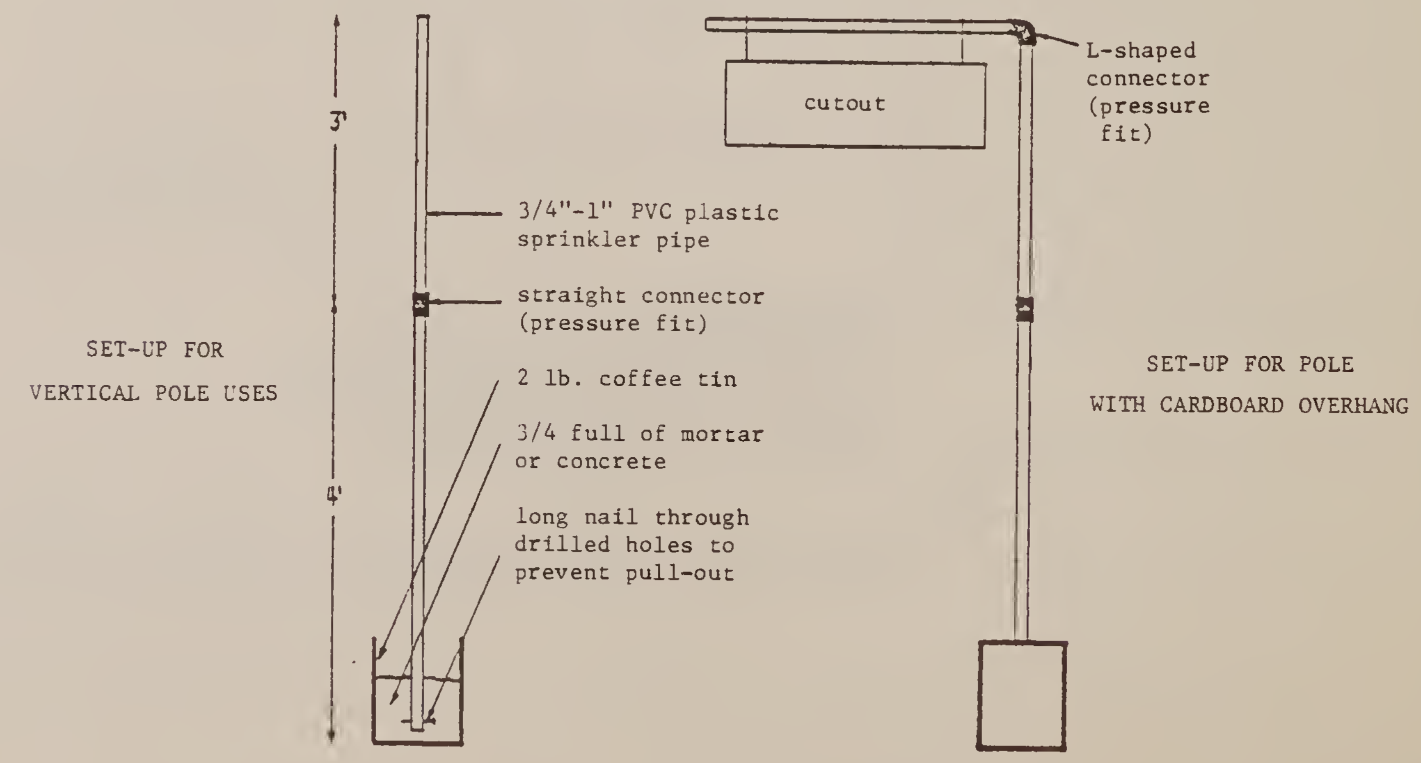
Most of the items listed in the exercise are of a standard nature, easily located in the community or at the training center.

Stacks of cartons refers to empty cardboard boxes (such as canned goods boxes often available at grocery stores) which should be roughly 1½' x 1' x 1'. For use in the Matching Trials, they are stood on end, so that each carton is about 1½' high. Thus, for example, when instructions require 1 stack of cartons, the examiner will place one carton on top of another carton to produce an "obstacle" which is about 3' high x 1' wide.

Cardboard cutouts refers to pieces of cardboard 1' x 3' in size. They need not be heavy cardboard, and they can be easily cut from an old cardboard dress box or a piece of poster board with ordinary scissors.

The measuring tape (shown in Equipment Needs box as ⊙) most useful for Matching Trial setups is a carpenter's measuring tape that will extend to 6' or more, and that has a feature allowing the tape to be "locked" at the desired extension during use.

Poles refers to portable poles which can be locally fabricated using readily available materials as shown in the diagram below. (If the examiner already has a set of poles of the type used in ETA training, they are quite acceptable for use in the Matching Trials whether they are made of wood, metal, or PVC tubing.)


3'
4'
3/4"-1" PVC plastic sprinkler pipe
straight connector (pressure fit)
2 lb. coffee tin
3/4 full of mortar or concrete
long nail through drilled holes to prevent pull-out
SET-UP FOR VERTICAL POLE USES
cutout
L-shaped connector (pressure fit)
SET-UP FOR POLE WITH CARDBOARD OVERHANG

PATHSOUNDER

MATCHING TRIALS

MATCHING TRIAL: 1

(M1)

Setting: Indoor or outdoor.

Conditions: After 5 minutes instruction and practice in putting-on and taking-off the Pathsounder (PS), operating its controls, and recognizing its audible and vibratory signals, the trainee will demonstrate his ability to repeat these procedures.

Purpose: 1) Test trainee's ability to put-on and take-off PS, and operate its manual controls.
2) Test trainee's ability to identify the PS audible and vibratory signals for distant and near objects.

Diagram: None.

Equipment

(Pathsounder)

Test Date: ______

Re-Test Date: ______

Specify 'Helping Steps' Used: ______

______ (A01)

Examiner's Instructions

Provide trainee 5 minutes instruction in putting-on, taking-off, and operating the controls and identifying the signals of the PS. After 5 minutes instruction and practice, hand PS to the trainee and SAY: "Now I'd like you to put on the Pathsounder and then turn it on. Are the instructions clear? Please begin." (SCORE ITEMS A02 - A03)

SAY: "Now please turn on the tactile signal, and turn the audible signal volume down as far as you can." (SCORE ITEM A04) Put your hand in front of the PS to activate its tactile signal (in neck strap) for near objects. SAY: "Which signal was that?" (SCORE ITEM A05)

SAY: "Please turn off the tactile signal and turn up the volume on the audible signal." Activate the audible signal for distant objects (buzzing signal) by standing in PS range at a distance of over 3'. SAY: "Which signal was that?" (SCORE ITEM A06)

SAY: "Please turn off the Pathsounder and then take it off." (SCORE ITEM A07)

Criteria	Test	ReTest
A02 Trainee puts on PS correctly without assistance		
A03 Trainee turns on PS		
A04 Trainee turns on tactile signal and turns down audible signal		
A05 Trainee says the tactile, or vibratory signal for near objects		
A06 Trainee says the audible signal for distant objects		
A07 Trainee turns off PS and takes it off		

Notes/Remarks: (A08)

MATCHING TRIAL: 2

(M1)

Setting: Indoor or outdoor. Large, obstacle-free area.

Conditions: There will be 4 poles placed around the trainee on the circumference of an imaginary circle of which he is the center. Through PS use the trainee will scan the poles, attempting to determine how many objects are present. The poles will be placed about 4' from the trainee and equidistant from each other. The PS will be turned off until trainee is in starting position.

Purpose: 1) Test trainee's ability to recognize separate objects and count them serially with the PS.

Equipment

⫰	4
🪑	
⊙	1
🚶	

(PS)

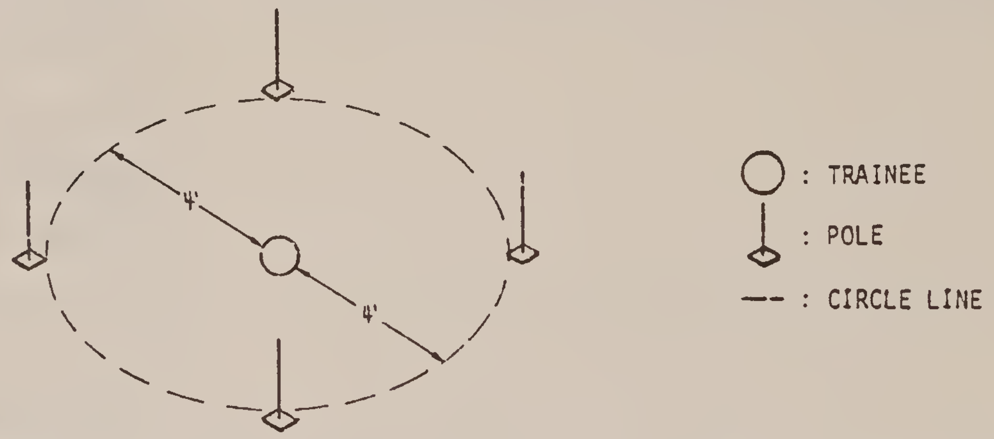
Test Date: ______

Re-Test Date: ______

Specify 'Helping Steps' Used: ______

(B01)

Diagram:



Examiner's Instructions

Guide trainee to starting position in center of "circle." SAY: "You are in the center of a circle of objects. I'd like you to turn in place. Just make a couple of slow 360° turns. Pay attention to the Pathsounder signals so it can be scanning the objects for you as you turn. After you finish your 2nd turn, tell me how many objects you think there are in the circle. Are the instructions clear? Please begin." (SCORE ITEM B02)

Criteria	Test	ReTest
B02 Trainee says there are 4 objects		

Notes/Remarks: (B03)

MATCHING TRIAL: 3

(M1)

Setting: Indoor or outdoor. Large obstacle-free area (e.g., playing field, gym).

Conditions: After 5 minutes instruction and practice in use of scanning (shoulder-scan) technique with the PS, the trainee will scan for a pole 4' ahead and 3' to his left, trying to detect and locate it. He will then walk up to the pole, using PS signals, and try to grasp it.

Purpose: 1) Test trainee's ability to detect, locate, and line up with an object through scanning with the PS.
2) Test trainee's ability to approach an object while keeping it in signal range in order to make contact with it.

Equipment

	1
	1

(PS)

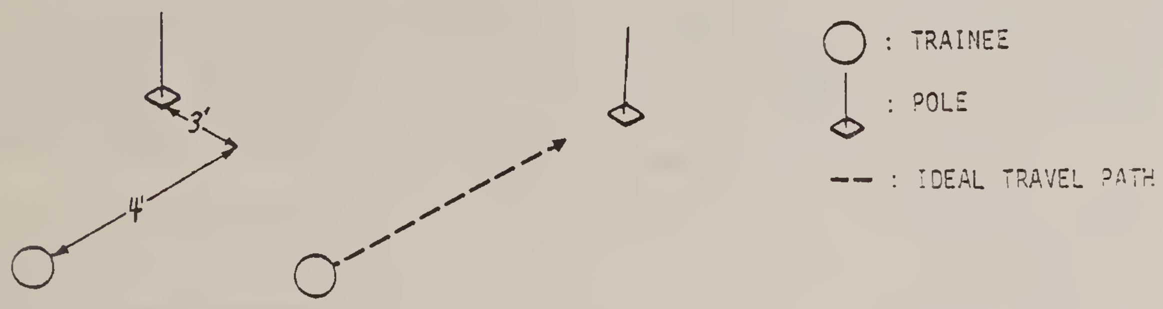
Test Date: ______

Re-Test Date: ____

Specify 'Helping Steps' Used: ____

(C01)

Diagram:



Examiner's Instructions

Provide trainee 5 minutes instruction in scanning with the PS. Position a pole so that as trainee scans for it he will not receive signals from wall, etc. Guide trainee to starting position with a pole 4' ahead of him and 3' to his left.

SAY: "Please switch the Pathsounder on. There is a pole ahead of you. I'd like you to scan for it and then tell me whether you think it is located to your left, to your right, or centered in front of you. Are the instructions clear? Please begin." (SCORE ITEM C02)

SAY: "Now, using the Pathsounder signal, I'd like you to turn until you believe you are facing the pole, and then walk towards it. When you think you are close enough to touch it, reach out and take hold of it. Are the instructions clear? Please begin." (SCORE ITEMS C03 - C05)

Criteria	Test	ReTest
C02 Trainee says to his left.		
C03 Trainee turns and faces pole		
C04 Trainee walks towards pole		
C05 Trainee grasps pole on first try		

Notes/Remarks: (C06)

MATCHING TRIAL: 4

(M1)

Setting: Indoor. Hallway 6'-8' wide and at least 35' long.

Conditions: After 5 minutes practice and instruction in using PS signals for purposes of obstacle detection and avoidance, the trainee will proceed along a hallway, attempting to avoid contact with 3 obstacles as shown in the diagram. The PS will be turned-off until the trainee is in starting position.

Purpose: 1) Test trainee's ability to use PS signals for purposes of obstacle detection and avoidance.

Equipment

🦯	
🪑	
⊙	1
🚶	

5 stacks of cartons, (PS)

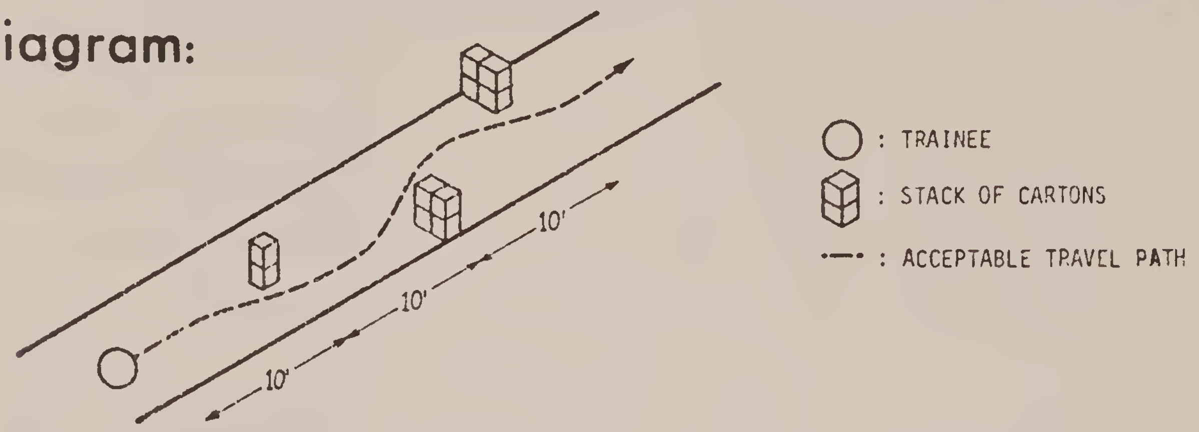
Test Date: ____

Re-Test Date: ____

Specify 'Helping Steps' Used: ____

(D01)

Diagram:



Examiner's Instructions

Provide the trainee 5 minutes of instruction and practice in using PS signals for purposes of obstacle detection and avoidance. Guide trainee to starting position.

SAY: "I'd like you to move forward along this hall. There are a few obstacles in the hall, and as you move forward, please try to avoid them. Use PS signals to help you do so. Take your time. I'll tell you when to stop. Are the instructions clear? Please begin."

Stop trainee after he has passed the obstacle at 30'.

(SCORE ITEMS D02 - D04)

Criteria	Test	ReTest
D02 Trainee avoids 1st obstacle		
D03 Trainee avoids 2nd obstacle		
D04 Trainee avoids 3rd obstacle		

Notes/Remarks: (D05)

MATCHING TRIAL: 5

(M1)

Setting: Outdoor. Large, open, obstacle-free area.

Conditions: The trainee will stand behind a participant 4' away from him. Both will be facing in the same direction. As the participant walks slowly forward, the trainee will follow, trying to maintain a distance of about 3' between himself and the participant by keeping participant in PS signal range. Through interpreting PS signals, the trainee is to detect that the participant has stopped, veer around, and continue past the participant without making body contact.

Purpose: 1) Test trainee's ability to use the PS to track a pedestrian while both are in motion, and to realize when the pedestrian has stopped moving.

2) Test trainee's ability to detect and avoid an in-path obstacle through PS use.

Equipment

	1

(PS)

Test Date: ________

Re-Test Date: ____

Specify 'Helping Steps' Used: ____

(E01)

Diagram:

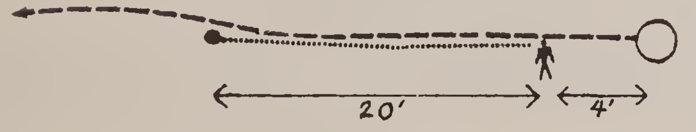
○ : TRAINEE

🚶 : PEDESTRIAN

— — : ACCEPTABLE TRAVEL PATH

.... : PEDESTRIAN TRAVEL PATH

● : STOPS/HESITATES



Examiner's Instructions

Guide trainee to starting position 4' behind participant.

SAY: "There is a person directly in front of you at a distance of 4' from you. Switch the PS on and locate that person through PS signals." (SCORE ITEM E02)

SAY: "The person is going to walk slowly forward and I'd like you to follow him. As you walk, keep him in signal range and try not to get much closer to him than you are right now. At some point the person is going to stop walking. When he does so, he becomes an obstacle in your path and you will have to pass him without making contact. Are the instructions clear? Please begin."

Stop the trainee after he has passed the participant. (SCORE ITEMS E03 - E06)

Criteria	Test	ReTest
E02 Trainee locates participant		
E03 Trainee keeps participant in signal range at least 75% of time		
E04 Trainee maintains about 3' distance from participant until participant stops walking		
E05 Trainee realizes when participant stops walking, and moves to pass participant		
E06 Trainee passes participant without making body contact		

Notes/Remarks: (E07)

MATCHING TRIAL: 6

(M1)

Setting: Indoor or outdoor. Large obstacle-free area.

Conditions: The trainee will scan with the PS to locate the first pole. As he walks, trainee will try to pass a pole directly ahead of him, keeping it on his left. He will then try to pass a second pole by locating it and keeping it on his right. (See diagram.)

Purpose: 1) Test trainee's ability to project a line of travel on the basis of information by PS signals during a scan.
2) Test trainee's ability to adjust his line of travel for desired spatial relationship with object located through PS use during travel.

Equipment

⊥	2
🦯	
⊙	1
🚶	

(PS)

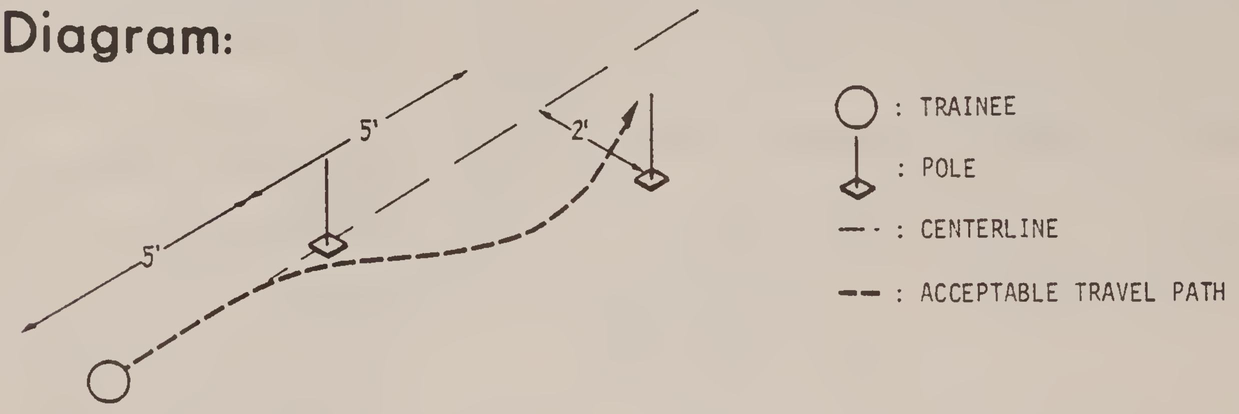
Test Date: ______

Re-Test Date: ______

Specify 'Helping Steps' Used: ______

(F01)

Diagram:



Examiner's Instructions

Guide trainee to starting position about 5' from 1st pole. SAY: "There is a pole ahead of you. I'd like you to locate it by scanning with the Pathsounder. After you locate it, approach it and walk past it, keeping it on your left. As soon as you have passed it, start scanning for a 2nd pole. Pass the 2nd pole, keeping it on your right. Try not to bump into either of the poles. Are the instructions clear? Please begin." (SCORE ITEMS F02 - F06)

Criteria	Test	ReTest
F02 Trainee detects and locates 1st pole		
F03 Trainee passes 1st pole, keeping it to his left		
F04 Trainee locates 2nd pole		
F05 Trainee passes 2nd pole, keeping it to his right		
F06 Trainee avoids body contact with poles		

Notes/Remarks: (F07)

MATCHING TRIAL: 7-Interview

(M1)

Setting: Verbal.

Conditions: The trainee will express some of his subjective reactions to the PS, based on his experience with it during "Matching Trials: PS 1-6."

Purpose: To ascertain if, at this point in his exposure to the PS, the trainee has developed any strong positive or negative reactions to it, and/or any opinions as to its potential usefulness for him personally in travel.

Equipment

Test Date: ________

Re-Test Date: ____ N/A

Specify 'Helping Steps' Used: ____ N/A

(G01)

Examiner's Instructions

Familiarize yourself with the items before beginning this exercise. Find a place where you and the trainee can have a relaxed discussion. Tell the trainee that you wish to get his personal reactions to the Pathsounder. Initiate an informal discussion, be sure to get answers for each item--by asking direct questions if the answers are not spontaneously forthcoming.

Notes/Remarks: (G02)

Criteria		Test	ReTest
G03	Does the trainee feel the PS is "cosmetically" acceptable?		N/A
G04	Does the trainee find the PS comfortable to wear?		
G05	Does the trainee feel that the PS display provides enough information to be a worthwhile travel aid for him?		
G06	Can the trainee think of at least two travel situations (indoor or outdoor) he now experiences weekly, in which he feels the PS would be a useful addition to the long cane?		
G07	Does the trainee think that, with the PS, he would expand his travel to include some places to which he does not travel with the long cane?		

PATHSOUNDER "HELPING STEPS"

Apply to
M.T. #

1. a. Be sure that, in putting on the PS, trainee feels for start of neckloop, and lets loop slip through his fingers until he has the clasp in his hand. This will guard against twists in the loop and assure that the right side of the clasp is facing out when trainee tries to slide clasp into receptacle.
   b. Remind trainee that both the on-off switch and the vibe switch (tactile signal) should be pushed forward, away from the user's chest, when the user wants to turn them on.
   c. As trainee stands in place (wearing PS), activiate the audible signals; interpret them for him, and then have him interpret them for you. Repeat procedure with tactile signals. Be sure the trainee knows the distance signal activates for objects between 6' and 2'9" away, the near signal activates when an object is within 2'8" or less of the PS.

2. a. Remind trainee that a scan of a series of objects detects not only the objects, but also the clear space between objects.

3. a. Face the trainee from a few feet away and have him locate you by using your voice as a clue; move several feet to the side and repeat. Then repeat this procedure, having trainee use PS scan and audible signals (rather than your voice) to detect and locate you.
   b. Trainee will find it easiest to approach and grasp the pole if he maintains signal contact with it as he walks.

4. a. If trainee detects obstacles via PS signals, but makes contact anyway, discuss and briefly demonstrate effect of "inside blind corners" with him. Trainee may be "coming in" too soon after altering his line of travel to avoid an obstacle.
   b. If trainee makes a sharp turn rather than a gradual veer to avoid obstacle, he may receive a buzzing signal from wall of hallway. Interpret this situation for him, and suggest a gradual veer and a scan for a clear path before continuing along hall.

5. a. Remind the trainee that he can scan to relocate the participant if he drops out of the signal.
   b. If the PS signals for a near object and the trainee cannot decide whether this means the participant has stopped or only that the trainee is walking too close, remind trainee that he can find out by briefly hesitating. If the participant has stopped walking, the PS will continue to give its signal for near (32") objects. If the participant is still walking, the PS signal will change from near to distant signal while the trainee hesitates.

6. a. If trainee detects the poles but makes contact with them anyway, he may be "coming in" too soon after altering his line of travel to pass a pole. Remind him that the object (in this case, a pole) may be 5' or 6' away when he first receives the PS signal for a distant object.

b. The trainee may detect the second pole before he is completely past the first pole (on his left). To be sure he can move towards his left and pass the second pole without bumping into the first pole, he may wish to scan the area to his left before walking into it.

PATHSOUNDER SUMMARY SCORE SHEET

For each "yes" in the "Criteria" section of the Pathsounder Matching Trials, enter a check mark in the corresponding space below. Do addition and multiplication as indicated to get a combined Total Score for Matching Trials 1-6. Only addition is needed to get the Total Score for Matching Trial 7 (Critical Factors - Interview).

<table>
<tr><th colspan="2">MATCHING TRIALS 1-6</th><th>MATCHING TRIAL 7</th></tr>
<tr><th>Primary</th><th>Advanced</th><th>Critical Factors - Interview</th></tr>
<tr>
<td>___ A02
___ A02
___ A04
___ A05
___ A06
___ B02
___ C02
___ C03
___ C04
___ D02
___ E02
___ E03
___ F02</td>
<td>___ A03
___ C05
___ D03
___ D04
___ E04
___ E05
___ E06
___ F03
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___ F06</td>
<td>___ G03
___ G04
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___ G06
___ G07</td>
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<tr>
<td>___ Number "yes"
x 2 (H01)</td>
<td>___ Number "yes"
x 3 (H02)</td>
<td>_____ Number "yes"
TOTAL (H03)</td>
</tr>
<tr>
<td colspan="2">___ plus ___ = ________
TOTAL</td>
<td></td>
</tr>
</table>

Pathsounder Interpretation: There are no established indicators which can be used to predict how well a person may eventually learn to use this ETA. Clearly, outcomes are not only affected by the person's initial skills but also by the extent and type of training available. However, it seems reasonable to suggest the following interpretations of the scores above on a tentative basis.

Circle the appropriate numbers in the columns below.

Interpretation Key

	Primary & Advanced Level Combined Score	Critical Factors - Interview
High aptitude with this device	48-59 (points)	5
Moderate aptitude with this device	43-47	4
Low aptitude with this device	32-42	3
Not advisable	0-31	0-2
	(H04)	(H05)

MOWAT SENSOR

MATCHING TRIALS

MATCHING TRIAL: 1

(M2)

Setting: Indoor or outdoor. Quiet area.

Conditions: After 5 minutes instruction in removing and replacing Mowat battery, plugging in the ear jack and unplugging it, operating the on/off switch, identifying its positions, and holding the Mowat in basic centered ("hand-held in front of body") operating position, trainee will demonstrate his ability to perform these activities.

Purpose: Test trainee's ability to manipulate separate parts of the Mowat unit and operate its control.

Diagram: None

Equipment

Mowat Sensor

Test Date:______

Re-Test Date: ______

Specify 'Helping Steps' Used: ______

______ (A01)

Examiner's Instructions

Provide trainee 5 minutes instruction in plugging in and unplugging ear jack, removing and replacing Mowat battery (stop trainee if he is going to insert battery wrong way!), operating switch and identifying long and short range setting, and holding Mowat in basic "hand in front of body" position. Then take Mowat from trainee. Put it in carrying case and hand it to trainee.

SAY: "Please take the Mowat out of its case and plug in the ear jack. Then please remove the battery and then replace the battery." (SCORE ITEMS A02 - A03)

SAY: "Please slide the control switch to its short range setting." (Trainee responds.) SAY: "Now slide the switch to its long range setting." (SCORE ITEM A04)

SAY: "Please turn off the Mowat." (SCORE ITEM A05)

SAY: "Now please hold the Mowat in the basic operating position I've shown you and turn it on." (SCORE ITEM A06)

SAY: "When you turned the Mowat on just now, for which setting did you put the switch? Long range or short range?" Check to see that trainee correctly identified range setting. (SCORE ITEM A07) Ask trainee to switch off Mowat.

Criteria	Test	ReTest
A02 Trainee plugs in ear jack without assistance		
A03 Trainee removes battery and indicates proper position in which to replace it		
A04 Trainee slides switch directly to short range and long range settings		
A05 Trainee turns off Mowat directly		
A06 Trainee holds Mowat properly in centered (hand in front of body) position		
A07 Trainee correctly indicates range setting he selected in turning on the Mowat		

Notes/Remarks: (A08)

____

____

MATCHING TRIAL: 2

(M2)

Setting: Indoor or outdoor. Obstacle-free area with at least 8' of blank wall (e.g., without windows, fire boxes, etc).

Conditions: The trainee will receive 5 minutes monitored instruction and practice in achieving and recognizing arms'-reach distance from a wall through Mowat signal interpretation. Then, with the Mowat set for long range, the trainee will approach a perpendicular wall, trying to stop at arm's-reach distance from it on the basis of Mowat signal information.

Purpose: Test trainee's ability to use Mowat signal information in order to achieve and recognize arm's-reach distance from a reflecting surface.

Equipment

(MS)

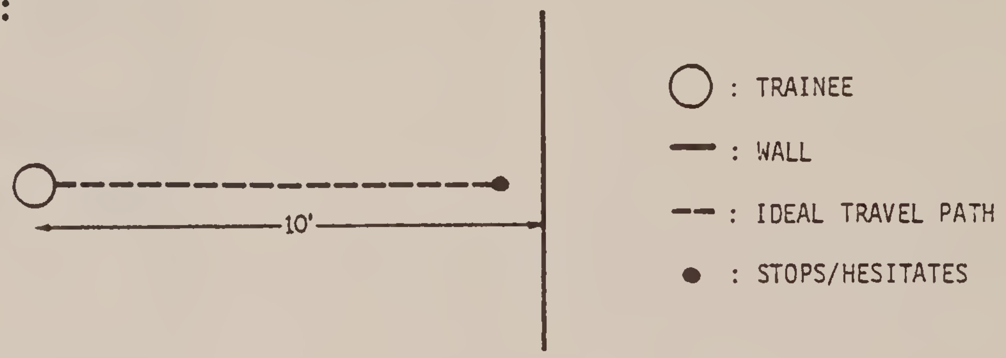
Test Date:______

Re-Test Date: ____

Specify 'Helping Steps' Used: ____

(B01)

Diagram:



Examiner's Instructions

With Mowat on long range setting, provide trainee with 5 minutes instruction and practice in achieving and recognizing arm's-reach distance from a wall. Then have trainee switch off Mowat. Position trainee so that he is facing perpendicular to the wall at a distance of about 10'.

SAY: "Now I'd like you to walk forward, towards the wall, and stop when you think you are arm's-reach distance from it." After trainee stops, have him extend his arm to check the distance. (SCORE ITEM B02)

Note: Arm's-reach distance is close enough to touch the wall when arm is extended, and far enough from it so that the elbow need not be flexed while touching the wall.

Criteria	Test	ReTest
B02 Trainee stops at arm's-reach distance from the wall on first try		

Notes/Remarks: (B03)

MATCHING TRIAL: 3

(M2)

Setting: Indoor or outdoor. Large obstacle-free area (e.g., playing field, gym).

Conditions: After 2 minutes instruction and practice in horizontal scanning with Mowat, the trainee will scan for a pole 4' ahead and 3' to his left, trying to detect it. He will then walk up to it and grasp it.

Purpose: 1) Test trainee's ability to detect, locate, and line up with an object through horizontal scanning with Mowat.

2) Test trainee's ability to line up with and approach an object, keeping it in signal range in order to make contact with it.

Equipment

⫰	1
🪑	
⊙	1
🧍	

(MS)

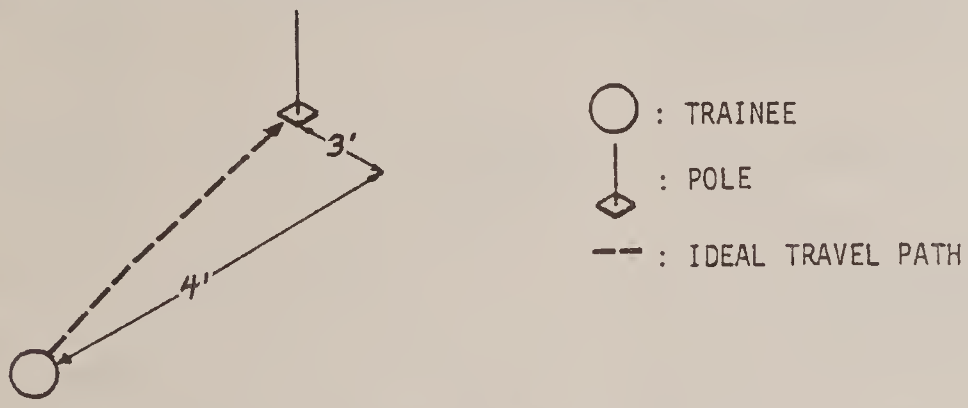
Test Date: ______

Re-Test Date: ______

Specify 'Helping Steps' Used: ______

(C01)

Diagram:



Examiner's Instructions

Provide trainee 2 minutes instruction in scanning with the Mowat. (Position a pole so that as trainee scans for it he will not receive signals from wall, etc.) Then guide trainee to starting position with a pole 4' ahead of him and 3' to his left.

SAY: "Please switch on the Mowat for long range setting. There is a pole ahead of you. I'd like you to scan for it and then tell me whether you think it is located to your left, to your right, or centered in front of you. Are the instructions clear? Please begin." (SCORE ITEM C02)

SAY: "Now, using the Mowat signal, I'd like you to turn until you believe that you are facing the pole and then walk towards it, and when you think you are close enough to touch it, reach out and take hold of it." SCORE ITEMS C03 - C05)

Criteria	Test	ReTest
C02 Trainee says to his left		
C03 Trainee turns and faces pole		
C04 Trainee walks towards pole		
C05 Trainee grasps pole on first try		

Notes/Remarks: (C06)

MATCHING TRIAL: 4

(M2)

Setting: Indoor or outdoor obstacle-free area with at least 25' of continuous blank wall without window or door moldings to affect Mowat signal.

Conditions: After 5 minutes instruction and practice in using the Mowat for purposes of paralleling a wall, the trainee will try to parallel a wall on his left for 20'. He will then turn, and on his return trip he will use the long cane while trying to parallel the wall on his right for 20' via interpretation of Mowat signals.

Purpose: Test the ease with which trainee can parallel a shoreline through interpretation of Mowat signals whether or not he must coordinate Mowat use with use of the long cane.

Equipment

Trainee's long cane, (MS)

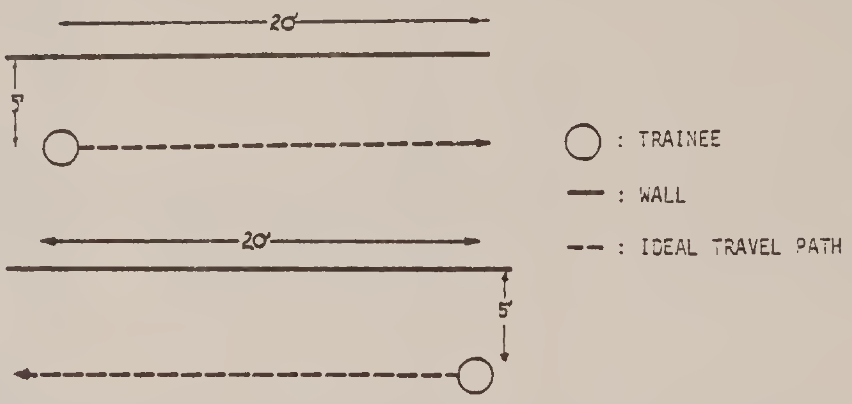
Test Date: ____

Re-Test Date: ____

Specify 'Helping Steps' Used: ____

(D01)

Diagram:



Examiner's Instructions

Provide trainee 5 minutes instruction and practice in paralleling a shoreline with the Mowat. Then guide trainee to starting position 5' from a wall parallel on his left. Use your audible monitor (earphone).

SAY: "There is a parallel wall about 5' from you on your left. Please switch the Mowat on to long range setting and walk forward, paralleling the wall on your left. Use the Mowat signals to help you stay parallel to the wall as you walk. I'll tell you when to stop. Are the instructions clear? Please begin." Stop trainee after he has gone about 20'. (SCORE ITEMS D02 - D03) Have the trainee turn around so the wall is parallel on his right and still about 5' from him. Give him his long cane.

SAY: "Now the wall is still 5' from you but now it's parallel on your right. I'd like you to walk forward using Mowat signals to help you keep the wall parallel on your right. As you walk, use the cane in your standard touch technique. If you stay parallel you won't hit the wall with your cane. Are the instructions clear? Please begin." (SCORE ITEMS D04 - D06))

Criteria	Test	ReTest
D02 Trainee maintains a parallel line of travel over at least 75% of route		
D03 Trainee holds Mowat in correct position for paralleling shoreline		
D04 Trainee maintains a parallel line of travel over at least 75% of route		
D05 Trainee successfully avoids any cane contact with wall		
D06 Trainee holds Mowat so that his cane is not in signal range over at least 75% of route		

Notes/Remarks: (D07)

MATCHING TRIAL: 5

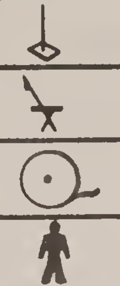
(M2)

Setting: Indoor or outdoor obstacle-free area with at least 25' of wall having 3 open doorways along its length (e.g., outdoor building wall with open entrances, wide indoor hall with open doors.)

Conditions: The trainee will try to parallel a wall for about 25', locating 3 open doorways in the wall while so doing. Trainee will try to line-up and pass through the 3rd opening via Mowat signal.

Purpose: Test trainee's ability to detect openings in shoreline, to locate an opening, scan to determine its width, line up with and pass through it, all via Mowat signal interpretation.

Equipment



(MS)

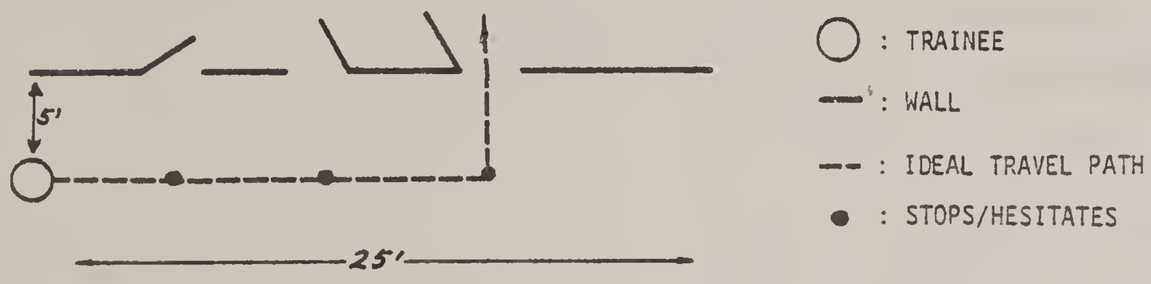
Test Date:______

Re-Test Date: ___

Specify 'Helping Steps' Used: ___

(E01)

Diagram: VARIATION



Examiner's Instructions

Guide Trainee to starting position 5' from and parallel to wall on his right/left which contains 2 open doorways.

SAY: "There is a parallel wall on your right/left. Using the Mowat on long range, please walk forward paralleling the wall. If you pass an opening in the wall, the Mowat signal will stop or you will notice a definite drop in the frequency of the vibrations. If you detect an opening in this way as you are paralleling the wall, please stop immediately and tell me where you think the opening is before you continue walking forward. Are the instructions clear? Please begin."

After trainee has stopped to point out the third doorway, SAY: "Please turn and face the doorway you have just detected. Scan with the Mowat to be sure you're pretty well centered and lined-up to walk through the opening, and then walk through it without bumping into it." (SCORE ITEMS E02 - E07)

Criteria	Test	ReTest
E02 Trainee detects and locates first opening		
E03 Trainee detects and locates second opening		
E04 Trainee avoids physical contact with wall		
E05 Trainee detects and locates third opening		
E06 Trainee faces third opening and scans to be sure he is lined-up; corrects his line, if necessary		
E07 Trainee passes through opening without bumping into doorframe, etc.		

Notes/Remarks: (E08)

MATCHING TRIAL: 6

(M2)

Setting: Parts A & B: Indoor or outdoor. Large, quiet, obstacle-free area.

Conditions: Part A: While turning in place, in the center of a circle of 8' diameter, the trainee will scan 4 objects with the Mowat, first to determine the number of objects scanned, and then to determine which of the scanned objects is closest to him. Part B: The trainee will scan objects to determine which of the objects is broadest.

Purpose: Part A: 1) Test trainee's ability to recognize separate objects as such, and to count them through scanning with the Mowat. 2) Test trainee's ability to distinguish among objects on the basis of their respective distances from him via Mowat signals. Part B: Test trainee's ability to make gross distinctions among detected objects on the basis of their breadth, through scanning with the Mowat.

Equipment

↧	4
🪑	
⊙	1
🚶	

2 stacks of cartons, (MS)

Test Date: ________

Re-Test Date: ____

____

Specify 'Helping Steps' Used: ____

____

(F01)

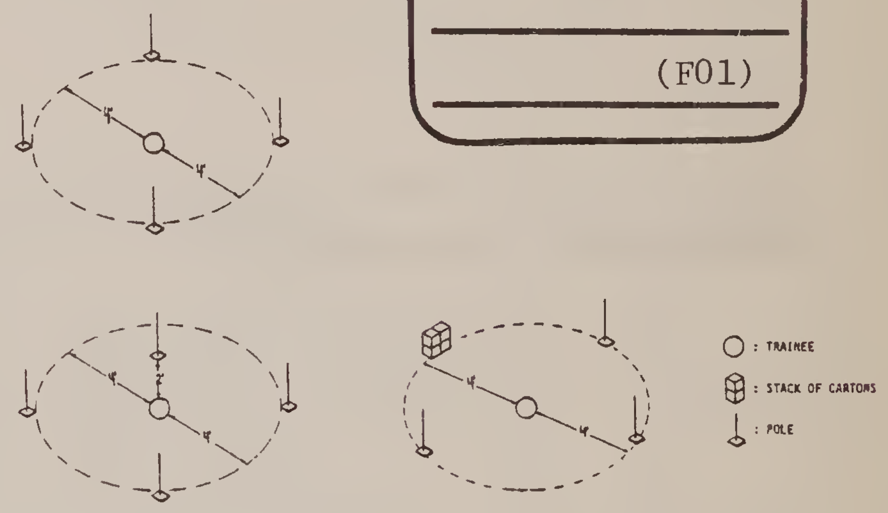
____

Examiner's Instructions

Part A: Guide trainee to starting position in center of the "circle," along the circumference of which you have placed 4 poles each 4' from trainee, with at least 3' between poles. (Remember to step out of range yourself.)

SAY: >"You are in the center of a circle of objects. Switch the Mowat to long range setting. Then turn in place. Make several slow 360° turns. While you turn, keep the Mowat centered and pay attention to its signals so it can be scanning the objects for you.< Then stop and tell me how many objects you think there are. Are the instructions clear? Please begin." (SCORE ITEM F02) Have trainee switch off Mowat. Quietly move 1 of the poles 2' closer to trainee. SAY: "Now make 2 more 360° turns. When you stop turning, tell me whether or not all the objects are the same distance away from you." (SCORE ITEM F03) If trainee says one object is nearer than the others SAY: "Make another turn, but this time stop when you think you are facing the nearest object." (SCORE ITEM F04) Part B: Let trainee rest while you set up for Part B. Replace one of the poles on the circumference with 2 stacks of cartons, side-by-side. Guide trainee to starting position in center of circle. Repeat instructions for Part A between > < . Then SAY: "The third time you turn, stop when you think you are facing the broadest object. Are the instructions clear? Please begin." (SCORE ITEM F05)

Diagram:



Criteria	Test	ReTest
F02) Trainee says 4 objects		
F03 Trainee says all objects are not the same distance from him		
F04 Trainee stops when he is facing the nearest object (pole 2' from him)		
F05 Trainee stops when he is facing broadest object		

Notes/Remarks: (F06)

____

____

MATCHING TRIAL: 7

(M2)

Setting: Indoor or outdoor. Large, obstacle-free area.

Conditions: The trainee will scan with the Mowat to locate the first pole. As he walks, trainee will try to pass a pole directly ahead of him by keeping it on his right. He will then pass a second pole by keeping it to his left. (See diagram.)

Purpose: 1) Test trainee's ability to detect and locate objects through Mowat use while in motion.

2) Test trainee's ability to adjust his line of travel for desired spatial relationship with object located through Mowat use while in motion.

Equipment

	2
	1

(MS)

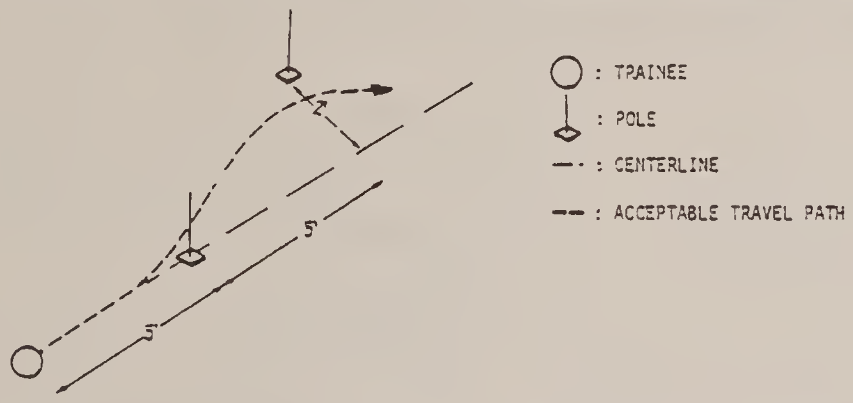
Test Date: ______

Re-Test Date: ______

Specify 'Helping Steps' Used: ______

(G01)

Diagram:



Examiner's Instructions

Guide trainee to starting position about 5' from 1st pole.

SAY: "There is a pole ahead of you. I'd like you to locate it by scanning with the Mowat. After you locate it, approach it and walk past it keeping it on your right. As soon as you have passed it, start scanning for a 2nd pole. Pass the 2nd pole, keeping it on your left. Are the instructions clear? Please begin." (SCORE ITEMS G02 - G06)

Criteria	Test	ReTest
G02 Trainee detects and locates 1st pole		
G03 Trainee passes 1st pole, keeping it to his right		
G04 Trainee locates 2nd pole		
G05 Trainee passes 2nd pole, keeping it to his left		
G06 Trainee avoids body contact with poles		

Notes/Remarks: (G07)

MATCHING TRIAL: 8

(M2)

Setting: Outdoor. Large, open, obstacle-free area.

Conditions: The trainee will stand behind a participant 4' away from him. Both will be facing in the same direction. As the participant walks slowly forward, the trainee will follow, trying to maintain a distance of at least 3' between himself and the participant. After walking 20' the participant will stop. The trainee is to detect that the participant has stopped, veer around, and continue past the participant without making body contact.

Purpose: 1) Test trainee's ability to use the Mowat to track a pedestrian while both are in motion, and to realize when the pedestrian has stopped moving.

2) Test trainee's ability to detect and avoid an in-path obstacle through Mowat use.

Equipment

	1

(MS)

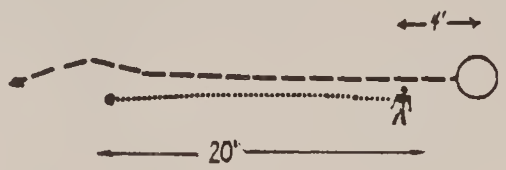
Test Date: ______

Re-Test Date: ______

Specify 'Helping Steps' Used: ______

(H01)

Diagram:



○ : TRAINEE

– – : ACCEPTABLE TRAVEL PATH

🚶 : PEDESTRIAN

—— : PEDESTRIAN TRAVEL PATH

● : STOPS/HESITATES

Examiner's Instructions

Guide trainee to starting position 4' behind participant.

SAY: "There is a person directly in front of you at a distance of 4' from you. Switch the Mowat on to long range and locate that person through Mowat signals." (SCORE ITEM H02)

SAY: "The person is going to walk slowly forward and I'd like you to follow him. As you walk, keep him in signal range and try not to get much closer to him than you are right now. At some point the person is going to stop walking. When he does so, he becomes an obstacle in your path and you will have to pass him without making contact. Are the instructions clear? Please begin."

Stop the trainee after he has passed the participant. (SCORE ITEMS H03 - H06)

Criteria	Test	ReTest
H02 Trainee locates participant		
H03 Trainee keeps participant in signal range at least 75% of time.		
H04 Trainee maintains at least 3' distance from participant until participant stops walking		
H05 Trainee realizes when participant stops walking, and moves to pass participant		
H06 Trainee passes participant without making body contact with him		

Notes/Remarks: (H07)

MATCHING TRIAL: 9-Interview

(M2)

Setting: Verbal.

Conditions: The trainee will express some of his subjective reactions to the Mowat, based on his experience with it during "Matching Trials: Mowat 1-8."

Purpose: To find out if, at this point in his exposure to the Mowat, the trainee has developed any strong positive or negative reactions to it, or opinions as to its potential usefulness for him personally.

Equipment

Test Date: ______

Re-Test Date: ______
N/A

Specify 'Helping Steps' Used: ______
N/A

(I01)

Examiner's Instructions

Familiarize yourself with the items before beginning this exercise. Find a place where you and the trainee can have a relaxed discussion. Tell the trainee that you wish to get his personal reactions to the Mowat. Initiate an informal discussion; be sure to get answers for each item--by asking direct questions if the answers are not spontaneously forthcoming.

Notes/Remarks: (I02)

Criteria		Test	ReTest
I03	Does the trainee feel he can understand Mowat signal information?		N/A
I04	Can the trainee think of at least two travel situations which he now encounters weekly in which he feels the Mowat would be a useful addition to the primary mobility aid he now uses?		
I05	Would the trainee find it convenient to keep one hand free for Mowat use?		
I06	Does the trainee feel Mowat use would provide him with enough additional information to make it a worthwhile travel aid for him?		
I07	Does the trainee think that, with the Mowat, he would expand his travel to include some places to which he does not travel with the long cane?		

MOWAT "HELPING STEPS"

Apply to
M.T. #

1.
   - a. Remind trainee that the battery's small contact goes on top and the larger one with the flanges goes on the bottom.
   - b. Be sure trainee understands what you mean by "top and bottom of Mowat."
   - c. Be sure trainee can tactually discriminate between the 2 battery contacts.
   - d. Remind trainee that long range reaches further from him than short range, so for long range he pushes away from himself (forward), for short range he pulls towards himself (backward), and "off" is in the middle, a neutral position.
   - e. Make a comparison between the Mowat held in centered position and the long cane held in centered position.
   - f. Let trainee check with his free hand to be sure the Mowat is centered and that its transmitter and receiver (screened openings in front) are level and pointing straight ahead.

2.
   - a. Remind trainee that it is not the strength of the vibrations that changes as he nears an object; it is the frequency of the vibrations, the number of vibrations (e.g., per minute) that changes by increasing as he approaches an object.
   - b. Have the trainee stand at arm's-reach distance from the wall and then lean towards it and away from it, noticing the changes in vibration frequency as he does so.
   - c. Caution trainee against scanning from side to side while he is trying to determine arm's-reach distance.
   - d. Be sure trainee is not pointing transmitter towards ground.

3.
   - a. If the trainee is scanning rapidly, it may be difficult to determine at what point in the scan the signal occurred. Caution the trainee to scan slowly.
   - b. If Mowat is not signaling object's presence, trainee may be directing beam at an extreme angle or he may not be beginning scan with Mowat in centered position (e.g., too high, towards ceiling). Check to be sure trainee is holding Mowat properly.
   - c. If the trainee is holding the Mowat at his side, rather than in centered position, he may be getting signals from his own clothing, etc. as he scans. Also, his scan will have to be asymmetrical in order to scan for an equal distance to both sides (e.g., if he is holding Mowat in right hand and at his right side, he will have to scan slightly further to the left to compensate for his body width between himself and objects to his left).
   - d. Suggest to the trainee that scanning with the Mowat is similar to scanning with the long cane. But remind trainee that if a narrow, shoulder-to-shoulder scan (i.e., a 30° scan, 15° to each side of center) does not detect an object, he can try a wider, side-to-side scan (i.e., a 180° scan, 90° to each side of center).

e. Trainee may find it easier to approach pole if he tries to maintain signal contact with it rather than scanning as he walks towards it.
f. Caution trainee against scanning from side to side while he is trying to determine arm's-reach distance.

4. a. The trainee can continue to hold the Mowat in the basic, centered position, but turn his hand so the beam is directed across his body and towards the shoreline he wishes to parallel.
b. Help the trainee find a position for Mowat such that neither his cane nor his "cane arm" generate a Mowat signal. (Explain that with training it is possible to carry the Mowat and the cane in the same hand.)
c. Give trainee brief practice in paralleling shoreline at about 3' distance with Mowat on short range so that if he veers away from the wall, the signal will cease.

5. a. Be sure the openings in the shoreline are distinct. Use the earphone to determine whether the Mowat signal "drops out" at openings, or merely decreases in frequency of vibrations.
b. Objects such as desks, etc. seen through the open doors may be within signal range in which case the signal will not drop out entirely; a sharp decrease in signal frequency indicates the opening.
c. Distinct openings will be most easily detectable if the trainee keeps the Mowat beam at 90° to the shoreline.

6. a. Be sure trainee is holding Mowat steady as he turns.
b. If the trainee is scanning rapidly, it may be difficult to determine at what point in the scan the signal occurred. Caution the trainee to scan slowly.
c. Suggest that trainee do a more rapid turn (scan) before or after a slow 360° turn so that Mowat signals from the objects will be more closely juxtaposed for purposes of comparison.
d. Remind trainee that it is not the strength of the vibrations that changes as he nears an object; it is the frequency of the vibrations, the number of vibrations (e.g., per minute) that changes by increasing as he approaches an object.

7. a. If trainee makes contact with either pole, he may be "coming in" too soon after locating and attempting to pass the pole. Remind him that when he first detects an object, it may still may be quite a distance from him, so he should pay attention to what the Mowat's signal tells him about the distance of an object from him as well as the presence of an object.

8. a. Remind trainee that he should scan to relocate participant if he drops out of the signal.
b. When he is walking behind the participant the trainee should use a narrow scan so he gets a continuous signal and knows when the participant has stopped walking.
c. If trainee makes contact with an in-path obstacle, remind him to scan for the width of the obstacle before adjusting his line of travel to pass it by.

MOWAT SUMMARY SCORE SHEET

For each "yes" in the "Criteria" section of the Pathsounder Matching Trials, enter a check mark in the corresponding space below. Do addition and multiplication as indicatedto get a combined Total Score for Matching Trials 1-8. Only addition is needed to get the Total Score for Matching Trial 9 (Critical Factors - Interview).

MATCHING TRIALS 1-8		MATCHING TRIAL 9
Primary	Advanced	Critical Factors - Interview
___ A02	___ A03	___ I03
___ A04	___ B02	___ I04
___ A05	___ C05	___ I05
___ A06	___ D03	___ I06
___ A07	___ D04	___ I07
___ C02	___ D06	
___ C03	___ E02	
___ C04	___ E03	
___ D02	___ E05	
___ D05	___ F03	
___ E04	___ G04	
___ E06	___ G05	
___ E07	___ G06	
___ F02	___ H03	
___ F04	___ H04	
___ F05	___ H05	
___ G02	___ H06	
___ G03		
___ H02		
___ x 2 Number "yes" (J01)	___ x 3 Number "yes" (J02)	___ TOTAL Number "yes" (J03)
___ plus	___ = ___ TOTAL	

Mowat Interpretation: There are no established indicators which can be used to predict how well a person may eventually learn to use this ETA. Clearly, outcomes are not only affected by the person's initial skills but also by the extent and type of training available. However, it seems reasonable to suggest the following interpretations of the scores above on a tentative basis.

Circle the appropriate numbers in the columns below.

Interpretation Key

	Primary & Advanced Level Combined Score	Critical Factors - Interview
High aptitude with this device	78-92 (points)	5
Moderate aptitude with this device	70-77	4
Low aptitude with this device	59-69	3
Not advisable	0-58	0-2
	(J04)	(J05)

NOTTINGHAM OBSTACLE DETECTOR

MATCHING TRIALS

MATCHING TIAL: 1

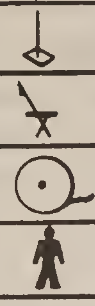
(M3)

Setting: Indoor or outdoor. A large, obstacle-free area bordered on at least 1 side by an uncluttered wall.

Conditions: After 5 minutes instruction and practice in the use of the NOD (Nottingham Obstacle Detector), the trainee will approach a perpendicular wall, attempting to stop when he is arm's-reach distance from it, via NOD signal interpretation.

Purpose: Test trainee's ability to recognize as such the NOD signal indicating arm's reach distance from an object.

Equipment



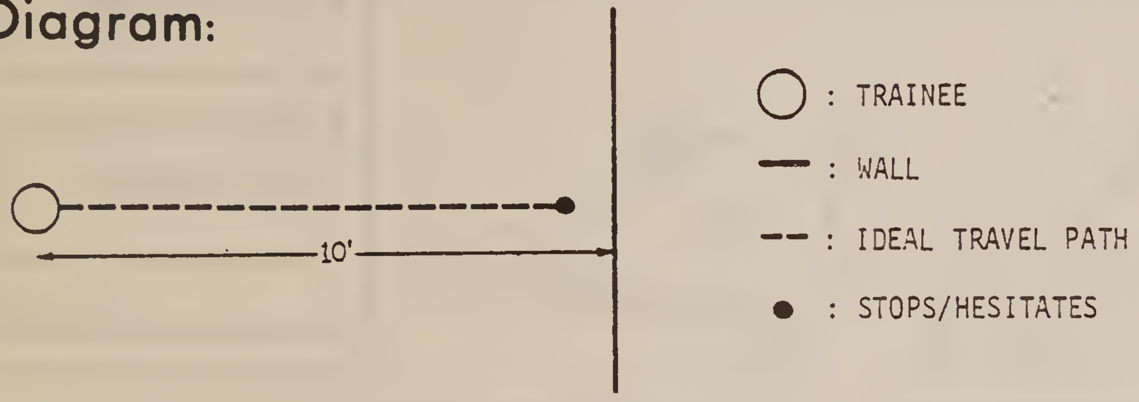
(Nottingham Obstacle Detector)

Test Date: ______
Re-Test Date: ______

Specify 'Helping Steps' Used: ______

(A01)

Diagram:



Examiner's Instructions

Provide trainee 5 minutes instruction and practice in basic use of the NOD. Stress scanning techniques and the relationship between object distance and the musical scale of the signal output, with special emphasis on that signal which indicates that the trainee is arm's reach distance from an object.

Guide trainee to starting position about 10' from a perpendicular wall. SAY: "You are facing a wall. I'd like you to walk forward. As you approach the wall listen to the NOD signals and stop as soon as you hear the signal that indicates you are arm's reach distance from the wall. Are the instructions clear? Please begin." (SCORE ITEM A02)

Criteria	Test	ReTest
A02 Trainee stops at arm's-reach distance from the wall		

Notes/Remarks: (A03)

MATCHING TRIAL: 2

(M3)

Setting: Indoor or outdoor. Large obstacle-free area (e.g., playing field, gym)

Conditions: After 5 minutes instruction and practice in horizontal scanning with the NOD, the trainee will scan for a pole 4' ahead and 3' to his right, trying to detect it. He will then walk up to it and grasp it.

Purpose: 1) Test trainee's ability to detect, locate, and line up with an object through horizontal scanning with the NOD.

2) Test trainee's ability to line up with and approach an object keeping it in signal range in order to make contact with it.

Equipment

	1
	1

(NOD)

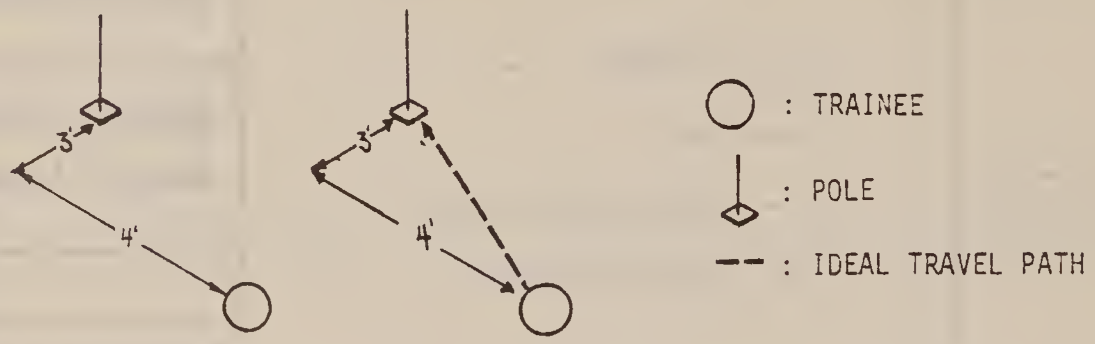
Test Date: ______

Re-Test Date: ______

Specify 'Helping Steps' Used: ______

(B01)

Diagram:



Examiner's Instructions

Provide trainee 5 minutes instruction in scanning with the NOD. Position a pole so that as trainee scans for it he will not receive signals from wall, etc. Guide trainee to starting position with a pole 4' ahead of him and 3' to his right.

SAY: "Please switch on the NOD. There is a pole ahead of you. I'd like you to scan for it and then tell me whether you think it is located to your left, to your right, or centered in front of you. Are the instructions clear? Please begin." (SCORE ITEM B02)

SAY: "Now, using the NOD signal, I'd like you to turn until you believe that you are facing the pole and then walk towards it, and when you think you are close enough to touch it, reach out and take hold of it." (SCORE ITEMS B03-B05)

Criteria	Test	ReTest
B02 Trainee says to his right		
B03 Trainee turns and faces pole		
B04 Trainee walks towards pole		
B05 Trainee grasps pole on first try		

Notes/Remarks: (B06)

MATCHING TRIAL: 3

(M3)

Setting: Indoor or outdoor. Large, obstacle-free area.

Conditions: The trainee will scan 4 objects, trying to determine, through NOD signal interpretation, which object is farthest from him. Objects will be stacks of cartons placed around trainee at different distances and in such a way that he can scan them serially by turning 360° in place (see diagram).

Purpose: 1) Test trainee's ability to recognize separate objects as such by scanning with the NOD.

2) Test trainee's ability to differentiate among objects in terms of their respective distances from him, through interpretation of NOD signals.

Equipment

	1

4 stacks of cartons (NOD)

Test Date: ______

Re-Test Date: ______

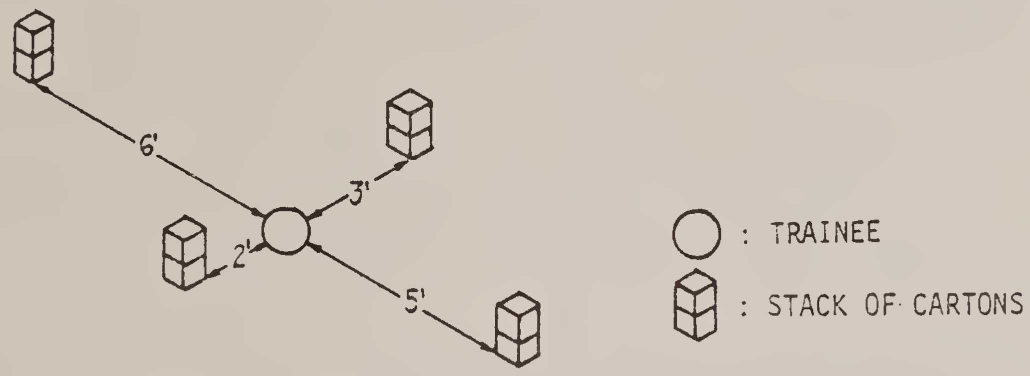
______

Specify 'Helping Steps' Used: ______

______

______ (C01)

Diagram:



Examiner's Instructions

Guide trainee to starting position in the center of the "circle" of objects.

SAY: "There are a few objects around you. You can scan them with the NOD by making a couple of slow 360° turns. Hold the NOD steady as you do so. The objects are at different distances from you. After you've made two 360° turns, listening to NOD signals for each object, I'd like you to turn so that you are facing the object which you think is the farthest from you. Are the instructions clear? Please begin." (SCORE ITEM C02)

Criteria	Test	ReTest
C02 Trainee turns to face object which is about 6' distant		

Notes/Remarks: (C03)

______

______

MATCHING TRIAL: 4

(M3)

Setting: Indoor or outdoor obstacle-free area with at least 25' of continuous blank wall (without windows or doors).

Conditions: After 5 minutes instruction and practice in using the NOD for purposes of paralleling a wall, the trainee will try to parallel a wall on his left for 20'. He will then turn, and on his return trip he will use the long cane while trying to parallel the wall on his right for 20' via interpretation of NOD signals.

Purpose: Test the ease with which trainee can parallel a shoreline through interpretation of NOD signals whether or not he must coordinate NOD use with use of the long cane.

Equipment

Trainee's long cane (NOD)

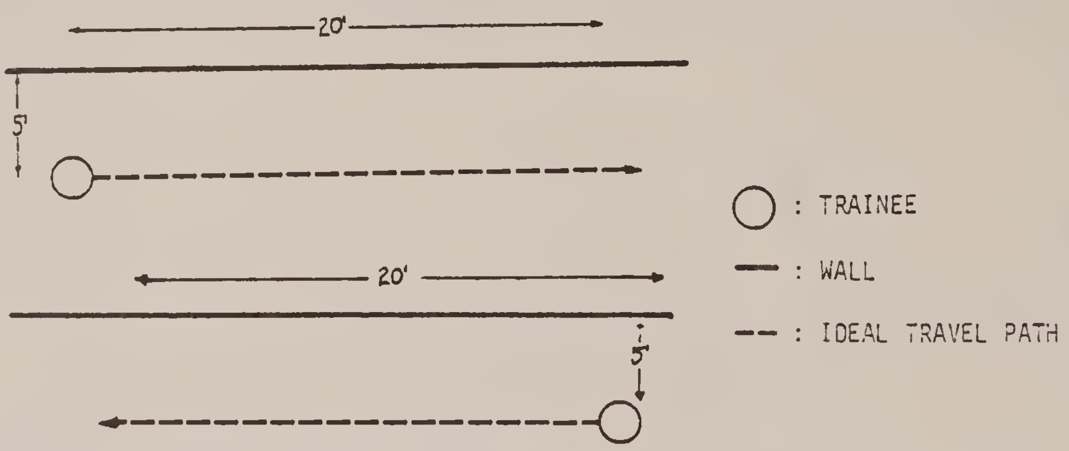
Test Date: ______

Re-Test Date: ______

Specify 'Helping Steps' Used: ______

(D01)

Diagram:



Examiner's Instructions

Provide the trainee 5 minutes of instruction and practice in paralleling a shoreline with the NOD. Then guide trainee to starting position 5' from a wall parallel on his left.

SAY: "There is a parallel wall about 5' from you on your left. Please switch on the NOD and walk forward paralleling the wall on your left. Use the NOD signals to help you stay parallel to the wall as you walk. I'll tell you when to stop. Are the instructions clear? Please begin." Stop trainee after he has gone about 20'. (SCORE ITEMS D02 - D04)

Have the trainee turn around so the wall is parallel on his right and still about 5' from him. Give him his long cane.

SAY: "Now the wall is still 5' from you but it's parallel on your right. I'd like you to walk forward using NOD signals to help you keep the wall parallel on your right. As you walk, use the cane in your standard touch technique. If you stay parallel you won't hit the wall with your cane. Are the instructions clear? Please begin." (SCORE ITEMS D05 - D06)

Criteria	Test	ReTest
D02 Trainee maintains parallel line of travel over at least 75% of route		
D03 Trainee holds NOD in correct position for paralleling shoreline		
D04 Trainee maintains parallel line of travel over at least 75% of route		
D05 Trainee avoids any cane contact with wall		
D06 Trainee holds NOD so his cane is not in signal range over at least 75% of route		

Notes/Remarks: (D07)

MATCHING TRIAL: 5

(M3)

Setting: Indoor. Obstacle-free hallway about 30' long, one side having 3 opened doors (opened away from hall or flush with hall wall).

Conditions: Trainee will use the NOD, rather than hand or cane, to trail wall for 30', as he tries to detect and locate 3 opened doorways in that wall. Trainee will indicate location of each opened doorway upon detection and will use NOD signals to line up with and walk through the third doorway.

Purpose: Test trainee's ability to detect openings in a shoreline, locate an opening, scan to determine its width, line up with it and pass through it, all via NOD signal interpretation.

Equipment

(NOD)

Test Date: ______

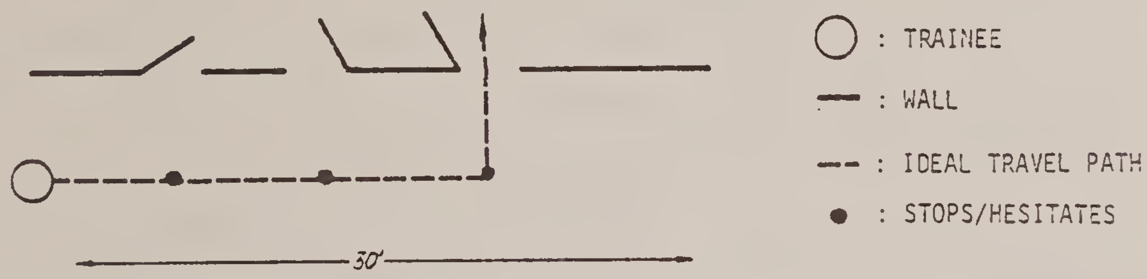
Re-Test Date: ______

Specify 'Helping Steps' Used: ______

(E01)

Diagram:

VARIATION



Examiner's Instructions

Guide trainee to starting position parallel to and about 5' from wall.

SAY: "There is a wall on your left/right. In the wall are some open doorways. I'd like you to walk forward next to this wall, keeping the NOD pointed towards the wall as you walk so that it can let you know when you are passing an open doorway. Each time you think you detect an open doorway, stop and tell me, and point to where you think the doorway is. Are the instructions clear? Please begin."

After trainee has stopped to point out the third doorway SAY: "Please turn and face the doorway you have just detected. Scan with the NOD to be sure you're pretty well centered and lined-up to walk through the opening, and then walk through it without bumping into it." (SCORE ITEMS E02 - E07)

Criteria	Test	ReTest
E02 Trainee detects and locates first opening		
E03 Trainee detects and locates second opening		
E04 Trainee avoids physical contact with wall		
E05 Trainee detects and locates third opening		
E06 Trainee faces third opening and scans to be sure he is lined-up; corrects his line, if necessary		
E07 Trainee passes through opening without bumping into doorframe, etc.		

Notes/Remarks: (E08)

MATCHING TRIAL: 6

(M3)

Setting: Outdoor. Large open, obstacle-free area.

Conditions: The trainee will stand behind a participant 4' away from him. Both will be facing in the same direction. As the participant walks slowly forward, the trainee will follow, keeping the participant in NOD signal range and trying to maintain a distance of at least 3' between himself and the participant. After walking 20' the participant will stop. By interpreting NOD signals the trainee is to detect that the participant has stopped, veer around, and continue past the participant without making body contact.

Purpose: 1) Test trainee's ability to use the NOD to track a pedestrian while both are in motion, and to realize when the pedestrian has stopped moving.

2) Test trainee's ability to detect and avoid an in-path obstacle through NOD use.

Equipment

🚶	1

(NOD)

Test Date:________

Re-Test Date: ____

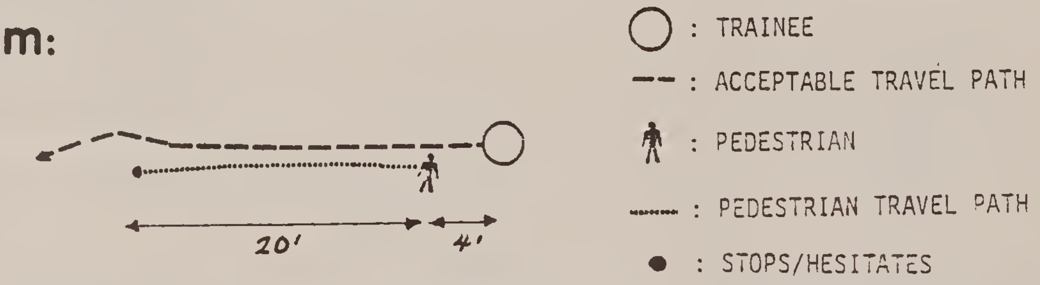
____

Specify 'Helping Steps' Used: ____

____

(F01)

Diagram:



Examiner's Instructions

Guide trainee to starting position 4' behind participant.

SAY: "There is a person directly in front of you at a distance of 4' from you. Switch on the NOD and locate that person through NOD signals." (SCORE ITEM F02)

SAY: "The person is going to walk slowly forward and I'd like you to follow him. As you walk, keep him in signal range and try not to get much closer to him than you are right now. At some point the person is going to stop walking. When he does so, he becomes an obstacle in your path and you will have to pass him without making contact. Are the instructions clear? Please begin."

Stop the trainee after he has passed the participant. (SCORE ITEMS F03 - F06)   )

Criteria	Test	ReTest
F02 Trainee locates participant		
F03 Trainee keeps participant signal in signal range at least 75% of time		
F04 Trainee maintains at least 3' distance from participant until participant stops walking		
F05 Trainee realizes when participant stops walking, and moves to pass participant		
F06 Trainee passes participant without making body contact with him		

Notes/Remarks: (F07)

____

____

MATCHING TRIAL: 7

(M3)

Setting: Indoor or outdoor. Large obstacle-free area.

Conditions: The trainee will scan with the NOD to locate the first pole. As he walks, trainee will try to pass a pole directly ahead of him, keeping it on his left. He will then pass a second pole by locating it and keeping it to his right. (See diagram.)

Purpose: 1) Test trainee's ability to detect and locate objects through NOD use while in motion.
2) Test trainee's ability to adjust his line of travel for desired spatial relationship with object located through NOD use while in motion.

Equipment

	2
	1

(NOD)

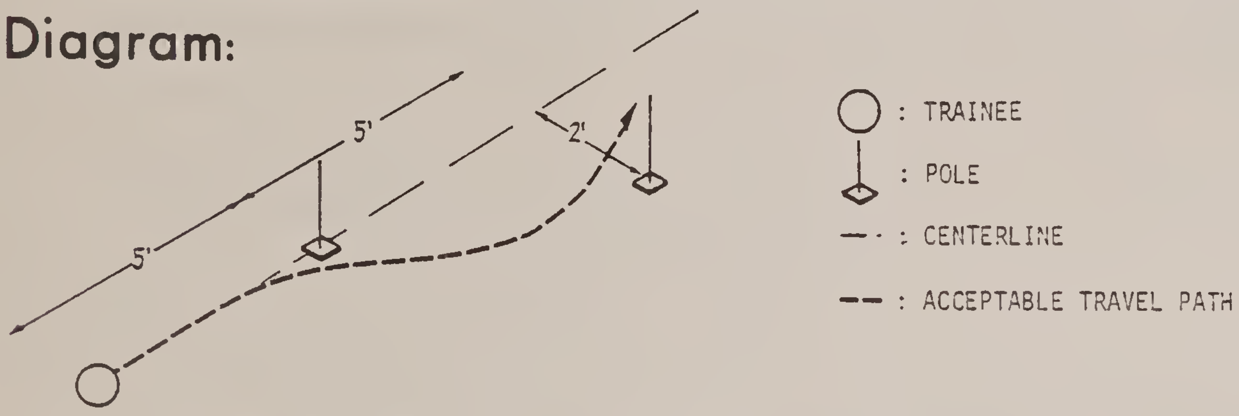
Test Date: ________

Re-Test Date: ________

Specify 'Helping Steps' Used: ________

(G01)

Diagram:



Examiner's Instructions

Guide trainee to starting position about 5' from first pole.

SAY: "There is a pole ahead of you. I'd like you to locate it by scanning with the NOD. After you locate it, approach it and walk past it keeping it on your left. As soon as you have passed it, start scanning for a second pole. Pass the second pole, keeping it on your right." (SCORE ITEMS G02 - G07)

Criteria	Test	ReTest
G02 Trainee detects and locates first pole		
G03 Trainee passes first pole keeping it to his left		
G04 Trainee locates second pole		
G05 Trainee passes second pole, keeping it to his right		
G06 Trainee avoids body contact with poles		

Notes/Remarks: (G07)

MATCHING TRIAL: 8

(M3)

Setting: Indoor. Hallway 6'-8' wide, obstacle-free, about 25' long.

Conditions: Knowing there will be obstacles in his path, the trainee will try to avoid them by scanning with the NOD as he walks along the hall. Obstacles will be: 1 stack of cartons directly in front of trainee at 10'; another, extending into hall on trainee's right at 15'; another, extending into hall on trainee's left at 25'.

Purpose: Test trainee's ability to use the NOD to detect and avoid anticipated obstacles.

Equipment

⚲	
⊙	1
🧍	

5 stacks of cartons

(NOD)

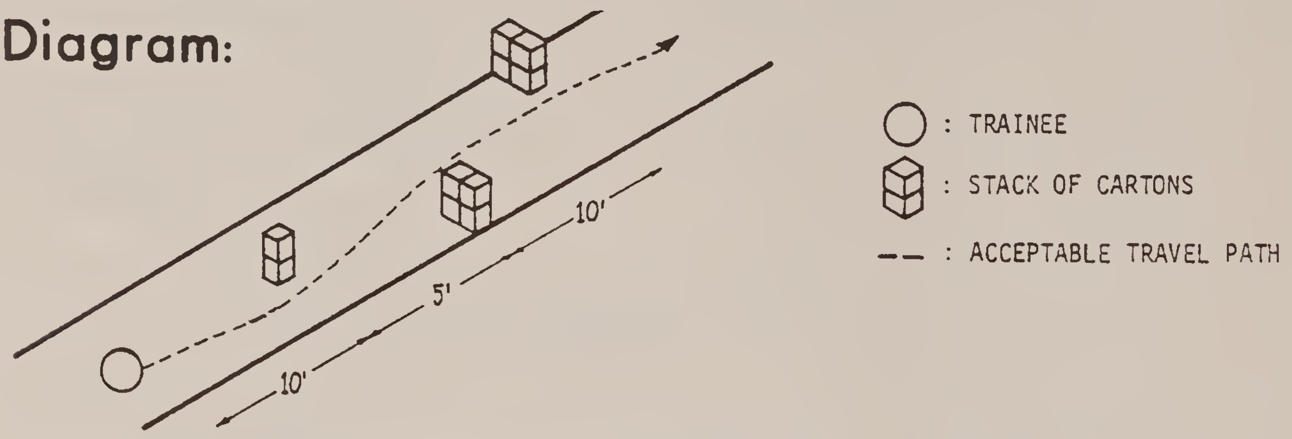
Test Date: ______

Re-Test Date: ______

Specify 'Helping Steps' Used: ______

(H01)

Diagram:



Examiner's Instructions

Guide trainee to starting position about 10' from first obstacle.

SAY: "I'd like you to walk along this hall. There are obstacles in the hall, so as you walk scan with the NOD. Try to detect and avoid any obstacles by using information the NOD will give you. Are the instructions clear? Please begin."

Stop trainee after he has passed third obstacle. (SCORE ITEMS H02 - H04)

Criteria	Test	ReTest
H02 Trainee avoids first obstacle.		
H03 Trainee avoids second obstacle		
H04 Trainee avoids third obstacle		

Notes/Remarks: (H05)

MATCHING TRIAL: 9-Interview

(M3)

Setting: Verbal.

Conditions: The trainee will express some of his subjective reactions to the NOD, based on his experience with it during "Matching Trials: NOD 1-8."

Purpose: To ascertain if, at this point in his exposure to the NOD, the trainee has developed any strong positive or negative reactions to it, or opinions as to its potential usefulness for him personally.

Equipment	

Test Date: ________

Re-Test Date: ____ N/A

Specify 'Helping Steps' Used: ____ N/A

(I01)

Examiner's Instructions

Familiarize yourself with the items before beginning this exercise. Find a place where you and the trainee can have a relaxed discussion. Tell the trainee that you wish to get his personal reactions to the NOD. Initiate an informal discussion, being sure to get answers for each item--by asking direct questions if the answers are not spontaneously forthcoming.

Notes/Remarks: (I02)

Criteria		Test	ReTest
I03	Does the trainee feel he can understand NOD signal information?		N/A
I04	Can the trainee think of at least two travel situations which he now encounters weekly in which he feels the NOD would be a very useful addition to the primary mobility aid he now uses?		
I05	Would the trainee find it convenient to keep one hand free for NOD use?		
I06	Does the trainee feel NOD use would provide him with enough additional information to make it a worthwhile travel aid for him?		
I07	Does the trainee think that, with the NOD, he would expand his travel to include some places to which he does not travel with the long cane?		

NOTTINGHAM OBSTACLE DETECTOR "HELPING STEPS"

Apply to M.T. #

1. a. Have trainee name the note of the musical signal scale (e.g., "la") which corresponds to arm's-reach distance for him, also naming its sequence (e.g., 6th note in ascending scale) and distance (e.g., 3') in feet from an object which it indicates.

2. a. If trainee is scanning rapidly, it may be difficult to determine at what point in the scan the signal occurred. Caution trainee to scan slowly.
b. If NOD is not signalling object's presence, trainee may be directing beam at an extreme angle (e.g., too high, towards ceiling). Check to be sure trainee is holding NOD properly.
c. Suggest to trainee that scanning with the NOD is similar to scanning with the long cane. But remind trainee that if a narrow, shoulder-to-shoulder scan (i.e., a 30° scan, 15° to each side of center) does not detect an object, he can try a wider, side-to-side scan (i.e., a 180° scan, 90° to each side of center).
d. Trainee may find it easier to approach pole if he tries to maintain signal contact with it rather than scanning as he walks towards it.
e. Caution trainee against scanning from side to side while trying to determine arm's-reach distance from the pole.

3. a. Be sure trainee is holding NOD steady as he turns.
b. Suggest that trainee do one rapid scan (turn), before or after slow scan so that NOD signals will be more closely juxtaposed for purposes of comparison of pitch.
c. If NOD is not signalling object's presence, trainee may be directing beam at an extreme angle (e.g., too high, towards ceiling). Check to see that he is holding NOD properly.

4. a. Be sure training is holding NOD steady. Moving NOD in a scan will cause signal pitch to vary regardless of his line of travel.
b. Trainee may be holding NOD in such a position that the long cane is sometimes in NOD range, thus initiating a confusing signal. If this occurs, explain it to trainee, and help him find a position for the NOD such that neither his cane nor cane arm initiate NOD signals.

5. a. Be sure doorway is free of all objects so that it initiates no NOD signal.
b. Be sure trainee is directing NOD beam perpendicularly to the wall.
c. If NOD is not signalling for wall, trainee may be directing beam at an extreme angle (e.g., too high, toward ceiling). Check to see that he is holding NOD properly.

6.
   a. Remind trainee that he should scan to relocate participant if he drops out of the signal.
   b. When walking behind the participant the trainee should use no more than a *very* narrow scan so that he gets a continuous signal and knows when the participant has stopped walking.
   c. If trainee makes contact with participant after participant has stopped walking, remind trainee to scan for the width of an obstacle before adjusting his line of travel to pass it. Also remind trainee that if he detects an obstacle *at 4' distance* and wants to pass it, he will have to walk *more than 4' before* he can consider himself safely past it and return to his original line of travel.

7.
   a. If trainee makes contact with either pole, he may be "coming in" too soon after detecting and attempting to pass it. Briefly discuss and demonstrate the effect of "inside blind corners". Remind him that when he first detects an object, it may be as far as 7' away, so he should pay attention to what the signal tells him about the object's distance as well as the object's presence.
   b. Once trainee has located the pole he is seeking, he should try to keep it located, keeping it in signal range until he has passed it and is ready to scan for the next pole.

8.
   a. If NOD is not signalling object's presence, trainee may be directing beam at an extreme angle (e.g., too high, towards ceiling). Check to see that he is holding NOD properly.
   b. If trainee makes contact with objects, he may be "coming in too soon after detecting and attempting to avoid an obstacle. Briefly discuss and demonstrate the effect of "inside blind corners".
   c. Be sure trainee is doing a wide enough scan. Suggest to trainee that scanning for obstacles with the NOD is similar to making an arc with the long cane, that he can make an arc of about the same width and coordinate the scan with his footsteps as he would do in standard 2-touch cane technique.
   d. Remind trainee that if he is walking parallel to the walls of the hallway, and he is holding the NOD so that its beam is perpendicular to the wall, he will receive signals from the wall at that point, rather than from in-path obstacles.

NOD SUMMARY SCORE SHEET

For each "yes" in the "Criteria" section of the NOD Matching Trials, enter a check mark in the corresponding space below. Do addition and multiplication as indicated to get a combined Total Score for Matching Trials 1-8. Only addition is needed to get the Total Score for Matching Trial 9 (Critical Factors - Interview).

MATCHING TRIALS 1-8		MATCHING TRIAL 9
Primary	Advanced	Critical Factors - Interview
___ B02	___ A02	___ I03
___ B03	___ B05	___ I04
___ B04	___ D04	___ I05
___ C02	___ D06	___ I06
___ D02	___ E02	___ I07
___ D03	___ E03	
___ D05	___ E05	
___ E04	___ F04	
___ E06	___ F05	
___ E07	___ F06	
___ F02	___ G04	
___ F03	___ G05	
___ G02	___ G06	
___ G03	___ H03	
___ H02	___ H04	
___ Number "yes"	___ Number "yes"	___ Number "yes"
x 2 _ _(J01)_ _ _	x 3 _ _(J02)_ _ _	TOTAL (J03)
___ plus	___ = ___ TOTAL	

NOD Interpretation: There are no established indicators which can be used to predict how well a person may eventually learn to use this ETA. Clearly, outcomes are not only affected by the person's initial skills but also by the extent and type of training available. However, it seems reasonable to suggest the following interpretations of the scores above on a tentative basis.

Circle the appropriate numbers in the columns below.

Interpretation Key

	Primary & Advanced Level Combined Score	Critical Factors - Interview
High aptitude with this device	67 - 75 (points)	5
Moderate aptitude with this device	62 - 66	4
Low aptitude with this device	54 - 61	3
Not advisable	0 - 53	0 - 2
	(J04)	(J05)

LASER CANE

MATCHING TRIALS

MATCHING TRIAL: 1

(M4)

Setting: Indoor. Quiet area.

Conditions: After 5 minutes of instruction and practice trainee will demonstrate his ability to operate Laser Cane (LC) power switch, range switch, forward tone switch, volume control dial, and his ability to locate the tactile stimulator.

Purpose: 1) Test trainee's ability to remember location and operation of LC controls.

Equipment

(LC)

Test Date: ____

Re-Test Date: ____

Specify 'Helping Steps' Used: ____

(A01)

Diagram: none

Examiner's Instructions

Provide trainee 5 minutes instruction on location and use of the LC controls. Include information on tactile stimulator.

After 5 minutes SAY: "Now I'd like to find out how much you've learned about the location and use of LC controls. Please locate the power switch and turn the cane on." Do not allow trainee more than 1 minute to locate or operate each separate control. (SCORE ITEM A02)

SAY: "Now locate the range switch and tell me on what range the cane is now set." Check to be sure trainee indicated range setting correctly. (SCORE ITEMS A03 - A04)

SAY: "Find the forward tone switch. Is the tone off or on?" Check to be sure trainee indicated correctly. (SCORE ITEMS A05 - A06)

SAY: "Now find the volume control. To decrease volume, do you turn the volume control towards the crook or away from the crook?" (SCORE ITEMS A07 - A08)

SAY: "Now put your index finger over the tactile stimulator. (SCORE ITEM A09)

Criteria	Test	ReTest
A02 Trainee locates switch and turns power on		
A03 Trainee locates range switch		
A04 Trainee correctly indicates range setting		
A05 Trainee locates forward tone switch		
A06 Trainee correctly indicates whether tone switch was on or off		
A07 Trainee locates volume control		
A08 Trainee says turn away from crook to decrease volume		
A09 Trainee puts index finger on tactile stimulator		

Notes/Remarks: (A10)

MATCHING TRIAL: 2

(M4)

Setting: Indoor or outdoor. A quiet, open area.

Conditions: After 5 minutes instruction and practice, trainee will demonstrate his ability to distinguish among the forward-, downward-, and upward-signals, and the forward and upward signal combination.

Purpose: Test trainee's ability to distinguish among and identify LC signals.

Diagram: none

Equipment	
(LC)	

Test Date:______

Re-Test Date: ____

Specify 'Helping Steps' Used: ____

(B01)

Examiner's Instructions

Provide trainee 5 minutes instruction and practice in recognizing LC signals. Using an extended arm, the instructor should activate each signal separately (this includes activating the forward signal with the forward tone switched off), and activate the forward and upward signals in combination.

After 5 minutes SAY: "Now I'm going to activate the cane's signals and I'd like you to tell me which signal fired. (Activate down signal.) Which signal was that?" (SCORE ITEM B02)

(Activate audible forward signal.) SAY: "Which signal was that?" (SCORE ITEM B03)

(Activate upward signal.) SAY: "Which signal was that?" (SCORE ITEM B04)

(Activate forward and upward signals in combination.) SAY: "Which signal was that?" (SCORE ITEM B05)

(Have trainee hold LC and activate tactile signal with forward tone switched off. SAY: "Which signal was that?" (SCORE ITEM B06)

Criteria	Test	ReTest
B02 Trainee says down signal		
B03 Trainee says forward signal		
B04 Trainee says upward signal		
B05 Trainee says upward and forward signals		
B06 Trainee says forward signal		

Notes/Remarks: (B07)

MATCHING TRIAL: 3

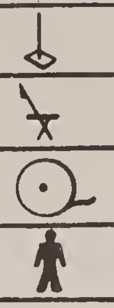
(M4)

Setting: Indoor. Large, quiet, obstacle-free room (e.g., gym).

Conditions: With the LC range set for 12', the trainee will approach a wall from a distance of 20'. The wall must be a light color and contain no glass windows. The trainee will stop as soon as he hears a signal from the cane, and will attempt to identify that signal. He will then continue until he hears a 2nd signal added to the display. He will then stop and attempt to identify 2nd signal.

Purpose: Test trainee's ability to identify and respond to signals while he is in motion.

Equipment



(LC)

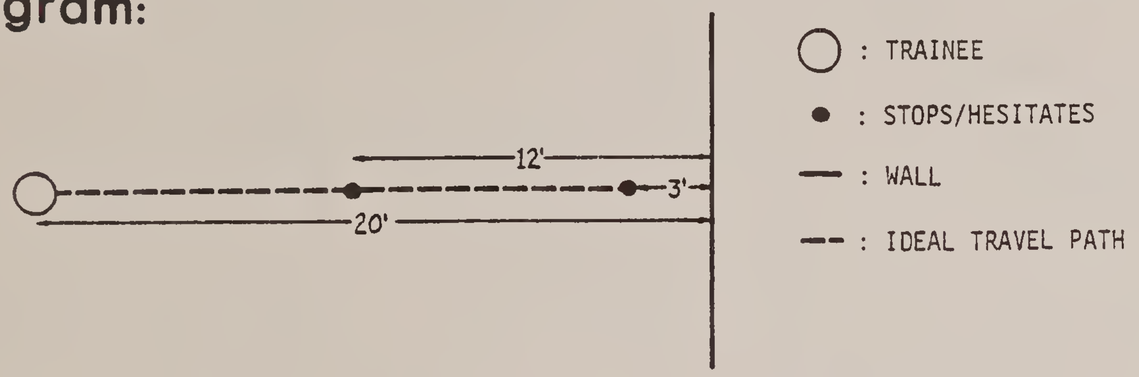
Test Date: ______

Re-Test Date: ______

Specify 'Helping Steps' Used: ______

(C01)

Diagram:



Examiner's Instructions

Guide trainee to starting position about 20' from wall. SAY: "You are facing a wall. In a moment, I'd like you to walk forward. As you do so, the wall will activate one of the laser cane signals. As soon as you hear that signal, stop and tell me which signal you think it is. Are the instructions clear? Please begin." (Trainee stops when forward signal starts to fire and indidates which signal he thinks is firing. (SCORE ITEMS C02 - C03)

SAY: "Now I'd like you to continue forward. If you hear an additional signal, stop immediately and tell me which signals you think are firing." (If trainee accidentally activates down signal, have him identify it and explain to trainee why it fired. Have him continue until he gets the combined forward and upward signals.) (SCORE ITEMS C04 - C05)

End the exercise by explaining how multiple signals can be used to detect a tall perpendicular object and at what distance from the object the upper signal fires.

Criteria	Test	ReTest
C02 Trainee stops when forward signal begins		
C03 Trainee says it is the forward signal		
C04 Trainee stops when upward signal begins		
C05 Trainee says both forward and upward signals are firing		

Notes/Remarks: (C06)

______

______

MATCHING TRIAL: 4

(M4)

Setting: Outdoor. About 1 block in a quiet residential area, ending with a down-curb at least 6" high.

Conditions: The trainee will walk about 1 block, substituting the LC (with power off) for the long cane, using it in basic touch technique and in trailing shorelines. About 10' before the corner, trainee will switch LC on and try to detect the curb via LC's down signal, stopping before making cane-contact.

Purpose: 1) Test trainee's ability to manually use the LC in place of long cane without forfeiting adequate cane technique. 2) Test trainee's ability to interpret and respond to the down signal during travel.

Equipment

(LC)

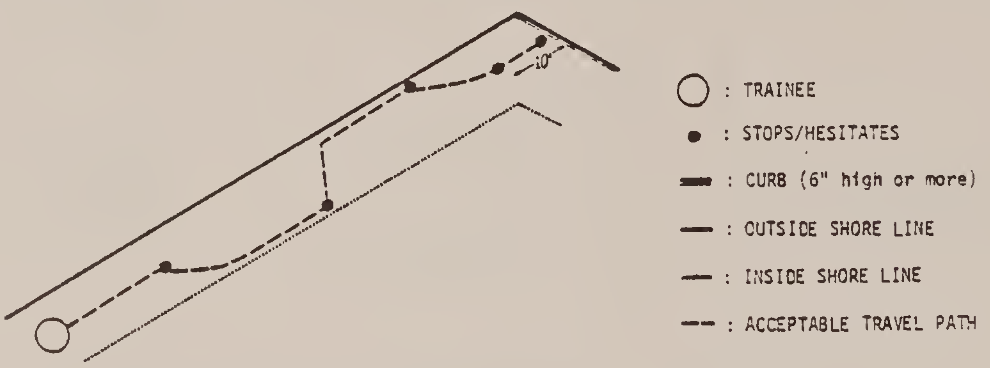
Test Date: ____

Re-Test Date: ____

Specify 'Helping Steps' Used: ____

(D01)

Diagram:



Examiner's Instructions

Guide trainee to starting position. Ask him to walk forward along the block. As he does so, interrupt him on 2 occasions to ask him to trail the inside or outside shoreline. Stop trainee when he is about 10' from corner. If you are not familiar with the trainee's normal cane technique it is essential that you observe him traveling in similar circumstances using his own cane before beginning this exercise. (SCORE ITEMS D02 - D04)

Having stopped trainee about 10' from corner, SAY: "Now I'd like you to switch the cane's power on. You are approaching the corner. As you continue, listen for the down signal which will inform you of the step-down ahead. As soon as you hear the down signal, stop. Are the instructions clear? Please begin." If the down signal fires prematurely or erratically because of incorrect cane technique on part of the trainee, rather than because of trainee's approach to curb, give a "NO" score for Item D05 . (SCORE ITEM D05)

Criteria	Test	ReTest
D02 Trainee maintains adequate arc		
D03 Trainee can use LC in standard trailing technique		
D04 Trainee experiences little or no difficulty in manual use of LC as long cane substitute (e.g., is not distressed by LC weight, grip circumference, etc.)		
D05 Trainee stops immediately when down signal fires		

Notes/Remarks: (D06)

MATCHING TRIAL: 5

(M4)

Setting: Indoor. Large obstacle-free room (e.g., gym).

Conditions: After 5 minutes of instruction and practice in paralleling a wall via forward signal use, the trainee will try to parallel a wall for 25', stopping when upward and forward signal combination informs him that he is about 3' from a perpendicular wall. The trainee will then turn and try to align parallel with the wall that was perpendicular as he walks forward for about 25'. The LC range will be set at 5'.

Purpose: 1) Test trainee's ability to parallel a shoreline through interpretation of LC signals.
2) Test trainee's ability to align parallel with a shoreline, through interpretation of LC signals.

Equipment

(LC)

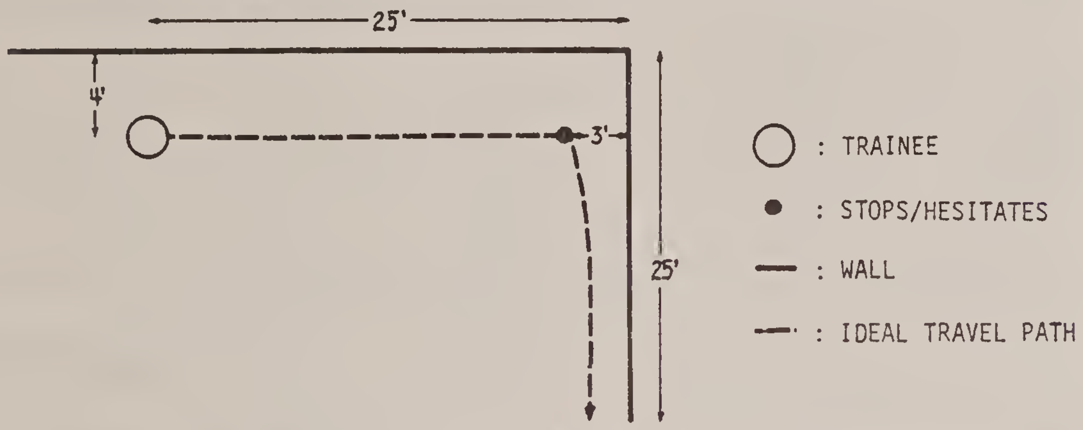
Test Date: ____

Re-Test Date: ____

Specify 'Helping Steps' Used: ____

(E01)

Diagram:



Examiner's Instructions

Provide trainee 5 minutes instruction and practice in paralleling and aligning parallel with a wall through use of LC signals. Review multiple signal use.

Guide trainee to starting position parallel to a wall 4' to his left.

SAY: "You are now parallel with the wall. I'd like you to walk forward, paralleling the wall. Don't make cane contact with the wall. Use the audible signals instead to keep informed on your position. Take your time. When the signals let you know that you're approaching a perpendicular wall, stop. Are the instructions clear? Please begin." (SCORE ITEMS E02 - E04)

After trainee detects perpendicular wall (via LC signals or cane contact) and stops, SAY: "Now I'd like you to turn so that you are parallel to that wall in front of you, and to walk parallel to it. Try to do this without making cane contact with the wall. Are the instructions clear? Please begin." (SCORE ITEMS E05 - E06)

Criteria	Test	ReTest
E02 Trainee avoids cane contact with wall		
E03 Trainee maintains parallel line of travel over at least 75% of route		
E04 Trainee stops before making cane contact with perpendicular wall		
E05 Trainee establishes a line of travel parallel to wall		
E06 Trainee avoids cane contact with wall		

Notes/Remarks: (E07)

MATCHING TRIAL: 6

(M4)

Setting: Outdoor. Sidewalk with no pedestrian traffic.

Conditions: Trainee will walk about 25' along sidewalk, attempting to detect, via audible signals, and to appropriately respond to two overhangs in his path. The first overhang will occur at 10', the second at 20'. Both overhangs will be at head-height for the trainee. The first overhang will enter the trainee's line of travel from the left, the second will enter from the right (see diagram).

Purpose: Test trainee's ability to interpret and respond appropriately to the upward signal of the LC.

Equipment

⊥	4
🪑	
⊙	
🧍	

twine, 2 cardboard cut-outs (1' x 3'), clothes pins.
(LC)

Test Date: ______

Re-Test Date: ______

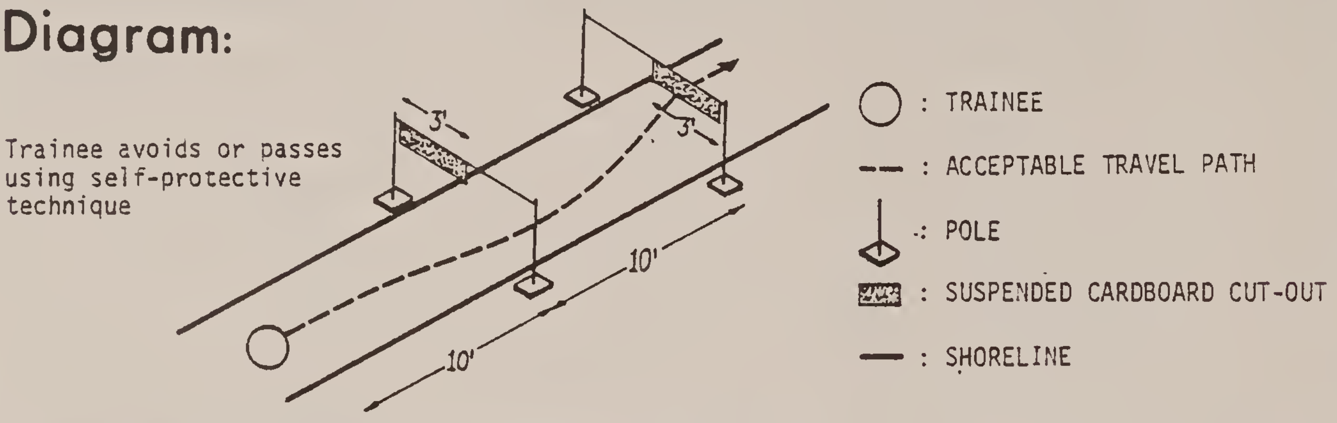
______

Specify 'Helping Steps' Used: ______

______

(F01)

Diagram:


Trainee avoids or passes using self-protective technique
3'
3'
10'
10'
: TRAINEE
: ACCEPTABLE TRAVEL PATH
: POLE
: SUSPENDED CARDBOARD CUT-OUT
: SHORELINE

Examiner's Instructions

At 10' from the starting point, place two poles, one on either side of the path. At 20', place two poles, one on either side of the path. Run a piece of twine from the first to the second pole, so that it crosses the travel path. Using three of the clothes pins, suspend one cardboard cut-out from the twine over the path. Do the same thing with the third and fourth poles. (Suspend the cut-out by its 3' side).

Provide trainee with 5 minutes instruction and practice in detecting and avoiding overhangs, including the proper modified self-protective technique to be used in passing overhangs. Then guide trainee to starting position and SAY: "I'd like you to walk forward along this sidewalk. If you detect any overhangs, try either to avoid them or to pass them using the appropriate self-protective technique. Are the instructions clear? Please begin." (SCORE ITEMS F02 - F05)

Criteria	Test	ReTest
F02 Trainee detects first overhang via LC signals		
F03 Trainee avoids or passes first overhang, using proper technique		
F04 Trainee detects second overhang via LC signals		
F05 Trainee avoids or passes second overhang, using proper technique		

Notes/Remarks: (F06)

______

______

MATCHING TRIAL: 7

(M4)

Setting: Indoor or outdoor. Large, quiet, obstacle-free area.

Conditions: After 5 minutes instruction and practice in scanning an object to determine its borders, the trainee will scan 5 objects with the LC, trying to determine the number of objects scanned and which of the objects is the broadest. Objects will be (1) 3 stacks of cartons, side-by-side to present a continuous surface, (2) a pole, (3) 1 stack of cartons, (4) a pole, and (5) 1 stack of cartons. They will be placed around trainee in a circle of which trainee is center. The circle will have a 10' diameter - each object being 5' from trainee. To scan the objects, the trainee will turn in place, holding the LC stationary in the standard long-cane centered position. LC will be set for 12' range.

Purpose: 1) Test trainee's ability to make gross distinctions among detected objects on the basis of their breadth, through scanning with the LC.

2) Test trainee's ability to recognize separate objects as such and to count them by scanning them serially with the LC.

Equipment

⊥	2
🪑	
⊙	1
🚶	

5 stacks of cartons, marker

(LC)

Test Date:______

Re-Test Date: ____

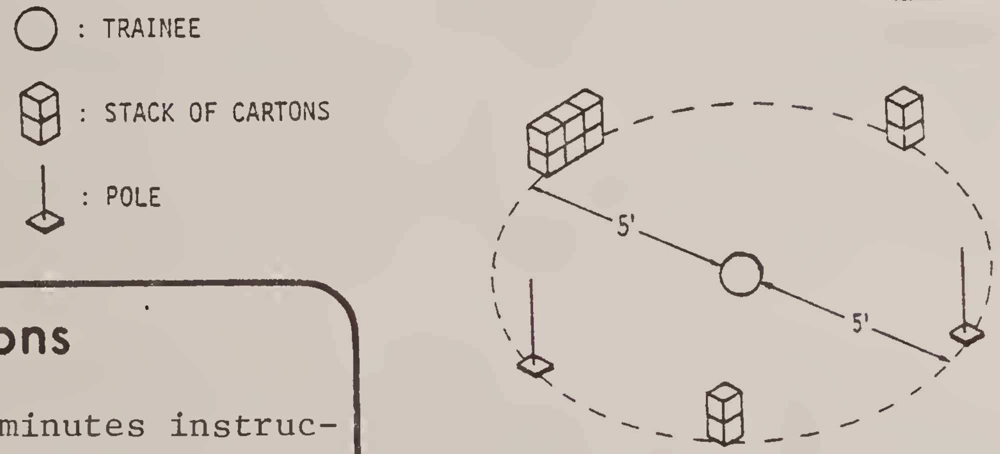
____

Specify 'Helping Steps' Used: ____

____

(G01)

Diagram:



Examiner's Instructions

Provide trainee 5 minutes instruction and practice in scanning an object to determine its borders. Guide trainee to starting position.

SAY: "You are in the center of a circle of objects. Turn in place; make a couple of slow turns. While you are turning, center the cane and keep it centered. Pay attention to the cane's signals so it can be scanning the objects for you as you turn. The third time you make your turn, stop when you think you are facing the broadest object. Are the instructions clear? Please begin." (SCORE ITEM G02)

After trainee has completed the above, SAY: "Now I'd like you to make two more 360° turns, after which I'd like you to tell me how many objects you think there are in the circle. Are the instructions clear? Please begin." (SCORE ITEM G03)

Criteria	Test	ReTest
G02 Trainee stops when he is facing the broadest object (3 stacks of cartons, side-by-side)		
G03 Trainee says there are 5 objects in the circle		

Notes/Remarks: (G04)

____

____

MATCHING TRIAL: 8

(M4)

Setting: Indoor or outdoor. Large obstacle-free area.

Conditions: After 5 minutes instruction and practice in scanning by arcing the LC while stationary and while walking, the trainee will scan in place to locate the first object. He will then walk towards it, trying to keep it on his right and pass it without making contact. He will then try to detect and pass a second object, keeping it on his left.

Purpose: 1) Test trainee's ability to detect and locate object through LC use while in motion.

2) Test trainee's ability to adjust his line of travel to maintain intended relationship to objects located through LC use while in motion.

Equipment

	1

2 stacks of cartons

(LC)

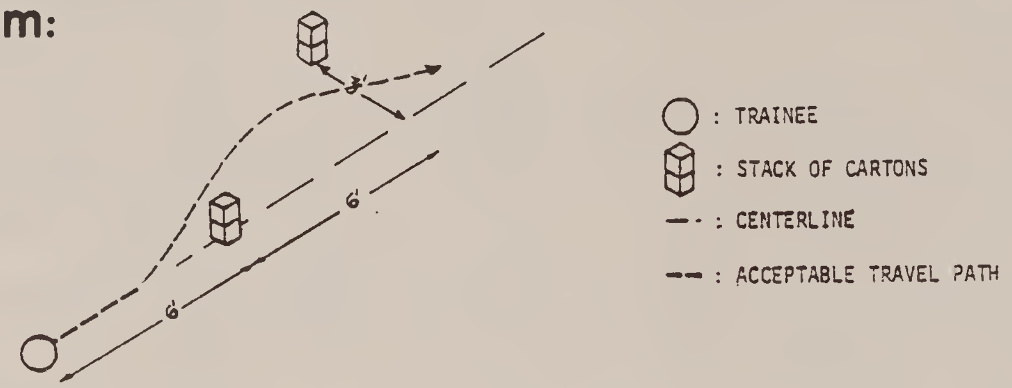
Test Date: ____

Re-Test Date: ____

Specify 'Helping Steps' Used: ____

(H01)

Diagram:



Examiner's Instructions

After 5 minutes of instruction and practice, guide trainee to starting position about 6' from first stack of cartons.

SAY: "There is an object ahead of you. I'd like you to locate it by scanning with the Laser Cane. After you locate it, please approach it and pass it, keeping it on your right. Try not to make any contact with it. Use Laser Cane signals to help you figure out where it is. As soon as you have passed it, start scanning for a second object. Pass the second object, keeping it on your left. Are the instructions clear? Please begin." (SCORE ITEMS H02 - H06)

Criteria	Test	ReTest
H02 Trainee detects and locates first stack of cartons		
H03 Trainee passes first stack of cartons, keeping it to his right		
H04 Trainee locates second stack of cartons		
H05 Trainee passes second stack of cartons, keeping it to his left		
H06 Trainee avoids cane contact with both stacks of cartons		

Notes/Remarks: (H07)

MATCHING TRIAL: 9

(M4)

Setting: Indoor. Large obstacle-free room (e.g., gym).

Conditions: The trainee will try to approach and make cane contact with a sound-source directly in front of him at a distance of 25', without making cane contact or body contact with any of three obstacles in his path. Obstacles will be stacks of cartons. The sound source will be a radio atop a stack of cartons 25' ahead of trainee.

Purpose: 1) Test trainee's ability to use the LC as an obstacle detector and clear path indicator.
2) Test trainee's ability to combine LC signal information with ambient sound cues in order to reach his destination.

Equipment

	1

5 stacks of cartons, radio
(LC)

Test Date: ______

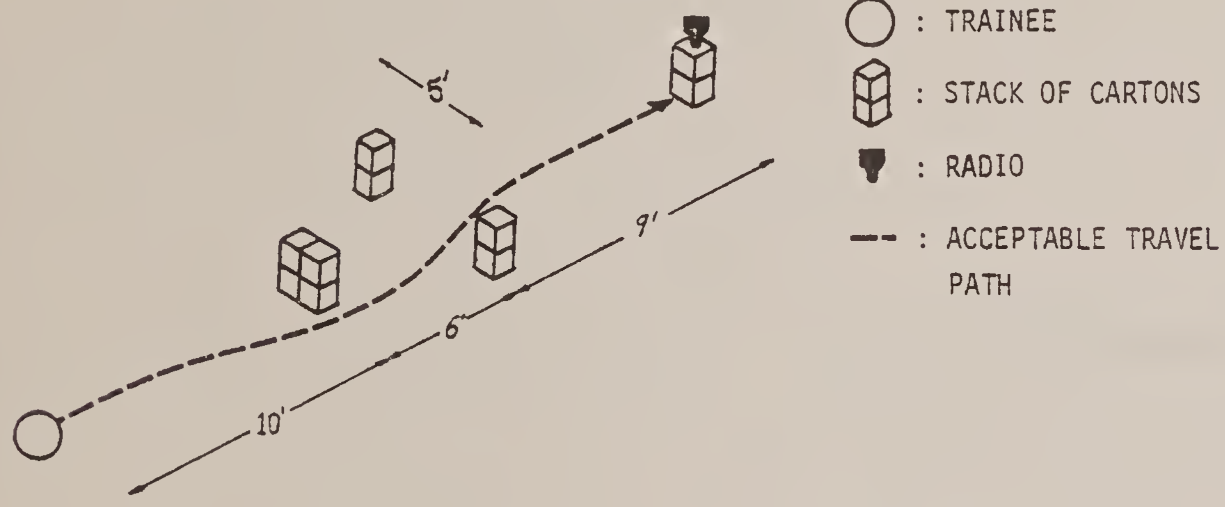
Re-Test Date: ______

Specify 'Helping Steps' Used: ______

______

(I01)

Diagram:



Examiner's Instructions

Set up objects for the exercise. The radio should be loud enough to hear, without being so loud that it may mask cane signals. Guide trainee to starting position.

SAY: "Switch on the Laser Cane to its short-range setting. In a moment I'd like you to walk over to that radio you hear playing and make cane-contact with the object on which the radio is sitting. There are some obstacles in the path between you and the radio. Try to use the cane signals to detect and avoid them, without making cane contact with them as you walk towards the radio. Are the instructions clear? Please begin." (SCORE ITEMS I02 - I04)

Criteria	Test	ReTest
I02 Trainee detects and avoids first obstacle (stack of cartons side-by-side)		
I03 Trainee detects and avoids remaining obstacles		
I04 Trainee makes cane contact with destination		

Notes/Remarks: (I05)

MATCHING TRIAL: 10-Interview

(M4)

Setting: Verbal.

Conditions: The trainee will express some of his subjective reactions to the LC, based on his experience with it during "Matching Trials: LC 1-9."

Purpose: To ascertain if, at this point in his exposure to the LC, the trainee has developed any strong positive or negative reactions to it, or opinions as to its potential usefulness for him personally.

Equipment

Test Date: ______

Re-Test Date: ______
N/A

Specify 'Helping Steps' Used: ______
N/A

(J01)

Examiner's Instructions

Familiarize yourself with the criteria before beginning the exercies. Find a place where you and the trainee can have a relaxed discussion. Tell the trainee that you wish to get his personal reactions to the Laser Cane. Initiate an informal discussion. During the discussion, be sure to get answers for each item--by asking direct questions if the answers are not spontaneously forthcoming.

Notes/Remarks: (J02)

______

______

Criteria	Test	ReTest
J03 Does trainee feel that most of the LC signal display information would be useful to him during travel?		N/A
J04 Does trainee feel LC is "cosmetically" acceptable?		
J05 Does trainee feel comfortable with the size and weight of the LC?		
J06 Would trainee have enough time and interest to properly maintain the LC (e.g., clean the optics, etc.)?		
J07 Can trainee think of at least two travel situations he now encounters weekly in which he feels the LC would offer benefits above those offered by the long cane?		
J08 Does the trainee think that the potential travel benefits of the LC would be worth the time he would need to learn its use?		
J09 Does the trainee think that, with the LC, he would expand his travel to include some places to which he does not travel with the long cane?		

LASER CANE "HELPING STEPS"

Apply to M.T. #

1.
   a. Remind trainee that the power switch and the forward tone switch both turn on when pushed toward the cane tip, and that the volume decreases as it is turned towards the cane tip.
   b. Review location and operation of Laser Cane (LC) controls.

2.
   a. Remind trainee that the pitch of the signal may be considered relevant to the height, or distance from the ground, of the object detected: the lowest tone tells about what is happening at ground level, the middle tone tells about what is happening at body level, and the highest tone tells about what is happening at head level.
   b. Have trainee listen to multiple signal, then deactivate upward signal, leaving forward signal only. Repeat, but this time deactivate forward signal, leaving upward signal only.
   c. If you are holding up a cane, etc. to activate upward signal, and it is not firing, remember that a very highly reflective surface, such as Scotch-Lite taped to a cane, may not cause signal fire.

3.
   a. Have trainee listen to multiple signal, then deactivate upward signal, leaving forward signal only. Repeat, but this time deactivate forward signal, leaving upward signal only.
   b. Discuss with trainee the distance from wall at which upward signal fires, the reason for this, and the information it provides.

4.
   a. Allow trainee to practice manual use of the LC for about 15 minutes.
   b. Take into consideration whether the LC length is appropriate for trainee and so note in "Remarks" space.
   c. Remind trainee that if he veers significantly while approaching a step-down/drop-off the LC may fail to detect it.

5.
   a. If upward signal is firing as trainee attempts to parallel wall notice if trainee is rolling his wrist while arcing, or gripping LC incorrectly. In either case, have trainee relax his grip; LC will assume correct position and he can note this position and continue. The upward signal may also fire if trainee comes too close to wall as he is paralleling wall. In this case he should move away from shoreline until upward signal no longer fires when cane is arced towards shoreline.
   b. For wrist rolling, have trainee center the cane and grasp end of crook in his left hand,, thus keeping crook in proper position as he uses his right hand to make the cane arc.
   c. If necessary, after steps 5a and 5b, give trainee 5 minutes practice time paralleling wall, trying not to cause upward signal to fire.
   d. Be sure cane is set at 5' range.

6.
- a. Be sure trainee can distinguish upward signal from forward signal. If he can't, see Laser Cane "Helping Steps" 2a and 2b.
- b. Remind trainee that an overhang can be located as can other objects/obstacles, by scanning with LC.
- c. Remind trainee that he may be no further than about 3' from overhang when LC detects it, so immediate response (e.g., slow pace/scan/self-protective technique) is necessary.

7.
- a. Be sure trainee is holding cane properly, not turning optics to either side, etc.
- b. Put two objects of very different breadth, such as a pole and a carton, next to each other. Have the trainee scan them individually. Have trainee tactually examine them and then repeat scan. Discuss cane signals received.

8.
- a. Be sure trainee is not rolling his wrist and thus distorting signals.
- b. Remind trainee that (if the cane is properly held) while the signal is firing the cane tip will be pointing toward the object initiating the signal.
- c. If trainee detects object but his approach indicates that he believes it is located 6" to 1' to the side of where it actually is, trainee may be holding LC so that optics are chronically (not rolling wrist) turned slightly to right/left. Check for this and have trainee relax grip and follow procedure for "righting" cane (5b).
- d. Be sure that the cartons are not positioned obliquely causing the signal beam to be deflected.
- e. Remind trainee not to "come in" too soon after passing object, and be sure he understands that an object may be 6' away from him when it first activates the forward signal.

9.
- a. Set up a row of two or three objects with about 3' between them and have trainee scan them with LC. Emphasize to trainee that the scan can detect and locate not only the object but also the open space between objects. (Allow about 10 minutes for this.)
- b. Observe trainee to be sure he does not "come in" too soon after deliberately veering to avoid an obstacle.

LASER CANE SUMMARY SCORE SHEET

For each "yes" in the "Criteria" section of the Laser Cane Matching Trials, enter a check mark in the corresponding space below. Do addition and multiplication as indicated to get a combined Total Score for Matching Trials 1-9. Only addition is needed to get the Total Score for Matching Trial 10 (Critical Factors - Interview).

MATCHING TRIALS 1-9				MATCHING TRIAL 10	
Primary		Advanced		Critical Factors - Interview	
___	A02	___	A04	___	J03
___	A03	___	A06	___	J04
___	A05	___	A08	___	J05
___	A07	___	B03	___	J06
___	A09	___	B04	___	J07
___	B02	___	D05	___	J08
___	B05	___	E05	___	J09
___	B06	___	E06		
___	C02	___	F03		
___	C03	___	F05		
___	C04	___	G02		
___	C05	___	H04		
___	D02	___	H05		
___	D03	___	H06		
___	D04	___	I02		
___	E02	___	I03		
___	E03				
___	E04				
___	F02				
___	F04				
___	G03				
___	H02				
___	H03				
___	I04				
___	Number "yes"	___	Number "yes"	___	Number "yes"
x 2	(K01)	x 3	(K02)	TOTAL	(K03)
___	plus	___	= ___ TOTAL		

Laser Cane Interpretation: There are no established indicators which can be used to predict how well a person may eventually learn to use this ETA. Clearly, outcomes are not only affected by the person's initial skills but also by the extent and type of training available. However, it seems reasonable to suggest the following interpretations of the scores above on a tentative basis.

Circle the appropriate numbers in the columns below.

Interpretation Key

	Primary & Advanced Level Combined Score	Critical Factors - Interview
High aptitude with this device	86 - 95	7
Moderate aptitude with this device	75 - 85	6
Low aptitude with this device	64 - 74	5
Not advisable	0 - 63	0 - 4
	(K04)	(K05)

SONICGUIDE

MATCHING TRIALS

MATCHING TRIAL: 1

(M5)

Setting: Parts A & B: Indoor. Large, obstacle-free room.

Conditions: Part A: Trainee will be given a brief familiarization with the Sonicguide (i.e., putting on, operating volume controls) and then given 5 minutes of instruction and practice in achieving and recognizing arm's-reach distance from a wall via Sonicguide (SG) signals. Trainee will then approach a wall which presents a continuous surface without windows, and try to stop at arm's-reach distance from it.

Part B: The same as Part A, except that there will be no instruction, and a pole will be substituted for the wall.

Purpose: 1) Test trainee's ability to achieve and recognize, via SG signals, arm's-reach distance from several types of objects.

2) Estimate ease with which the trainee discriminates among different signal pitches, and recognizes the particular pitch carrying information necessary to accomplishing a specific task.

Equipment

(Sonicguide and telemetry monitor)

Test Date: ______

Re-Test Date: ______

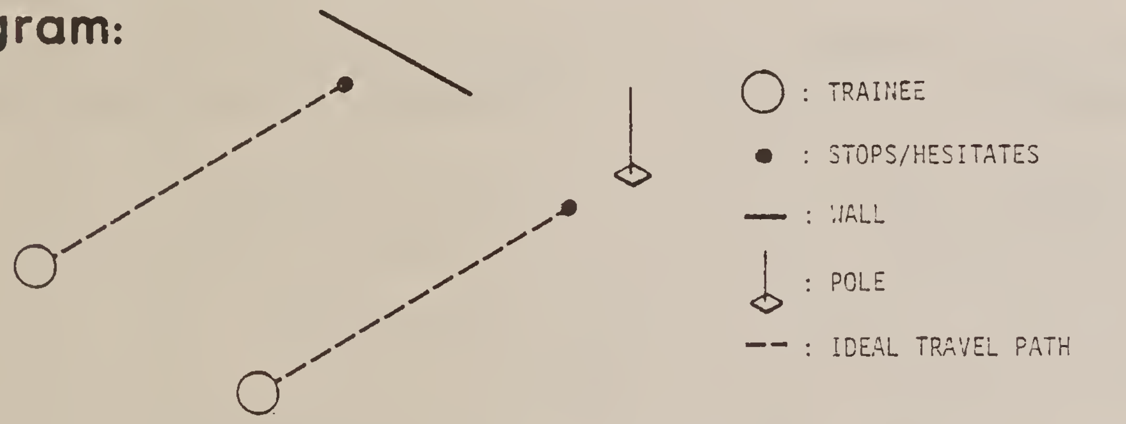
______

Specify 'Helping Steps' Used: ______

______

______ (A01)

Diagram:



Examiner's Instructions

Part A: Give trainee 5 minutes instruction and monitored practice in achieving arm's-reach distance from a wall via Sonicguide signals. Then position trainee about 10' from wall, facing wall. SAY: "Now I'd like you to walk towards the wall and stop when you think you are arm's-reach distance from it." After trainee stops, have him extend his arm to check the distance. (SCORE ITEM A02)

Part B. Position trainee about 10' from pole. Be sure he is facing pole. SAY: "Now I'd like you to walk towards the pole and stop when you think you're arm's-reach from it. Then try to reach out and grasp it." (SCORE ITEMS A03 - A04)

Criteria	Test	ReTest
A02 Trainee stops at arm's-reach distance from wall		
A03 Trainee stops at arm's-reach distance from pole		
A04 Trainee grasps pole on first try		

Notes/Remarks: (A05)

______

______

MATCHING TRIAL: 2

(M5)

Setting: Indoor. Large, obstacle-free room.

Conditions: While the trainee remains stationary, participant(s) will enter and pass through device range several times on either side, and once on both sides simultaneously. The trainee will indicate whether the signal source occurs on his right, left, or both sides.

Purpose: 1) Test trainee's ability to determine in which ear predominant signal is received, thus locating signal source.
2) Test trainee's ability to determine direction of moving object via SG signals.

Equipment

	2

(SG)

Test Date: ______

Re-Test Date: ______

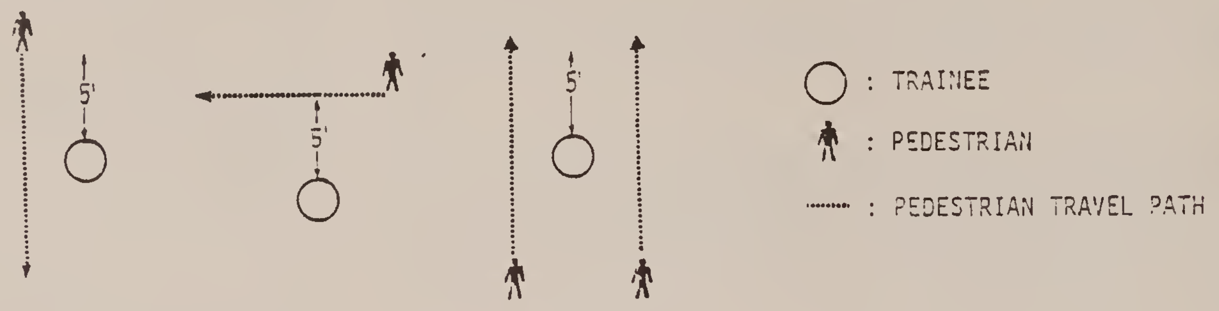
______

Specify 'Helping Steps' Used: ______

______

(B01)

Diagram:



Examiner's Instructions

Inform trainee that when an object occurs on one's right, the signal is received mostly in the right ear; on one's left, the left ear. Guide trainee to starting position about 5' from partipant standing to trainee's left (in range). Switch on SG.

SAY: > "Do not scan. Listen. There is something in signal range. Is it on your left, your right, or both sides?" < (SCORE ITEM B02) Signal participant to walk toward you, passing trainee on trainee's left. SAY: "Did that person pass you on your right or your left?" (SCORE ITEM B03) Have participant position himself on trainee's right. Repeat instructions between ><'s. (SCORE ITEM B04) Signal participant to walk from right to left in front of trainee. SAY: "Which direction did that person go?" (SCORE ITEM B05) Have both participants pass trainee, one on either side, coming from behind trainee and stopping 5' beyond trainee. SAY: "Is something on your left, right, or both sides?" (SCORE ITEM B06) SAY: "What direction did they come from?" (SCORE ITEM B07)

Criteria	Test	ReTest
B02 Trainee says left		
B03 Trainee says left		
B04 Trainee says right		
B05 Trainee indicates right to left		
B06 Trainee says both sides		
B07 Trainee indicates that they came from behind and stopped ahead of him		

Notes/Remarks: (B08)

______

______

MATCHING TRIAL: 3

(M5)

Setting: Outdoor. Large, obstacle-free area bounded by building wall for at least 30'.

Conditions: Trainee will be given 5 minutes monitored instruction and practice in aligning to, and paralleling a wall through use of SG signals. Trainee will then try to align and walk parallel to a wall for a distance of about 30' by using SG signals.

Purpose: 1) Test trainee's ability to align and walk parallel with shoreline through use of SG signals.

2) Test trainee's ability to understand the basis for interpretation of SG signals.

Equipment

	1

(SG)

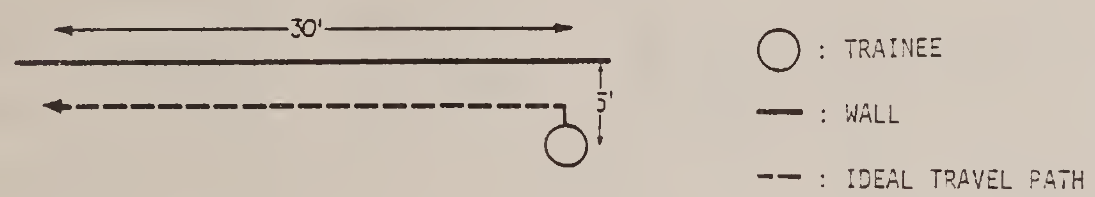
Test Date: ____

Re-Test Date: ____

Specify 'Helping Steps' Used: ____

(C01)

Diagram:



Examiner's Instructions

Give trainee 5 minutes instruction and monitored practice in paralleling a wall through use of device signals only. (The wall should not have an entirely smooth surface. It should be "bumpy" as is a rough stucco wall, or present a number of evenly spaced inside corners, as a brick wall.)

After 5 minutes, position trainee 5' from wall, facing wall. SAY: "Please turn until the wall is on your right and you think you are parallel with the wall."

After trainee finishes turning, SAY: "Now please walk forward, keeping the wall parallel on your right. I'll tell you when to stop."

Stop trainee when he has walked for about 30'. (SCORE ITEMS C02 - C03)

Criteria	Test	ReTest
C02 Trainee aligns parallel with wall		
C03 Trainee maintains parallel alignment for at least 75% of the route		

Notes/Remarks: (C04)

MATCHING TRIAL: 4

(M5)

Setting: Indoor. Large, obstacle-free room (e.g., gym).

Conditions: Through interpretation of SG signals, the trainee will attempt to discriminate between 2 walls on the basis of their respective distance from him.

Purpose: Test trainee's ability to make gross distinctions of object distance through interpretation of SG signals.

Equipment

	1

(SG)

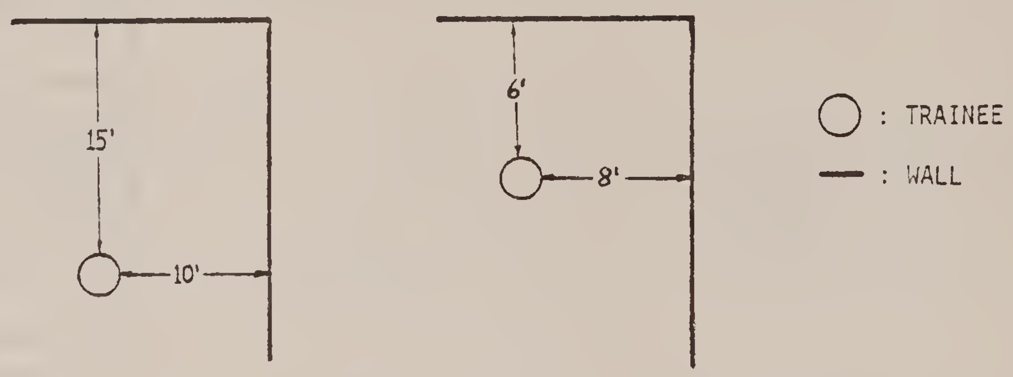
Test Date: ____

Re-Test Date: ____

Specify 'Helping Steps' Used: ____

(D01)

Diagram:



Examiner's Instructions

Guide trainee to starting position 15' from a perpendicular wall, and 10' from a parallel wall.

>SAY: "There is a wall in front of you and there is a wall on your left/right. Listen to the signal from the wall in front of you, and then turn 90° and listen to the signal from the wall on your left/right. Tell me which wall is farther from you."< (SCORE ITEM D02)

Reposition trainee near a different corner of the room. Trainee should be 6' from the perpendicular wall and 8' from the parallel wall. Repeat above instructions occurring between ><'s. (SCORE ITEM D03)

Criteria	Test	ReTest
D02 Trainee indicates the farthest wall		
D03 Trainee indicates the farthest wall		

Notes/Remarks: (D04)

MATCHING TRIAL: 5

(M5)

Setting: Indoor or outdoor. Large, obstacle-free area (e.g., playing field, gym).

Conditions: After 5 minutes instruction and practice in use of the horizontal scanning technique with the SG, the trainee will scan the area ahead of him in which will be displayed different numbers of poles. The trainee will determine the number of objects in the scanned area. Objects to be scanned will be 5' ahead of trainee, in a semi-circle with 3' between each object (see diagram). SG is turned off while poles are being positioned.

Purpose: Test trainee's ability to detect more than multiple separate objects in the area ahead of him via SG.

Equipment

	4
	1

(SG)

Test Date: ______

Re-Test Date: ______

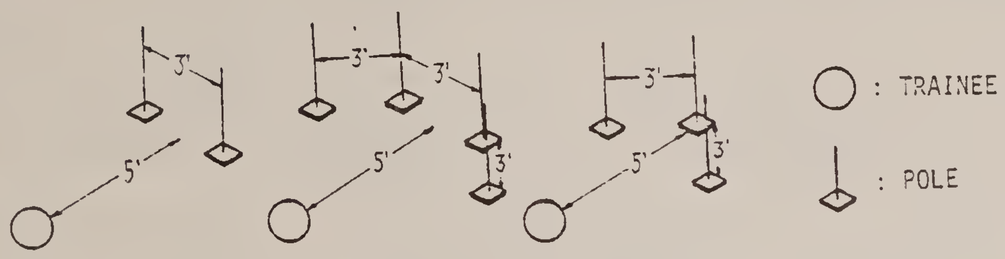
______

Specify 'Helping Steps' Used: ______

______

______ (E01)

Diagram:



Examiner's Instructions

Before beginning exercise, provide trainee with 5 minutes instruction and practice in use of horizontal scanning technique with SG.

In the area ahead of trainee place 2 poles, 5' ahead of him and 3' apart from each other.

> SAY: "Please scan the area ahead of you and tell me how many objects you detect there." (Trainee scans and responds. Examiner requests response if none is forthcoming.)< (SCORE ITEM E02)

Add 2 poles. Repeat above instructions occurring between> <'s. (SCORE ITEM E03)

Remove 1 pole. Be sure the 3 remaining poles are in position as shown in the diagram for 3 poles. Repeat above instructions occurring between > <'s. (SCORE ITEM E04)

Criteria	Test	ReTest
E02 Trainee indicates 2 poles		
E03 Trainee indicates 4 poles		
E04 Trainee indicates 3 poles		

Notes/Remarks: (E05)

______

______

MATCHING TRIAL: 6

(M5)

Setting: Indoor or outdoor. Large, obstacle-free area (e.g., playing field, gym).

Conditions: There will be various pole/pole-person combinations placed around trainee at a distance of 4' from trainee on the circumference of an imaginary circle of which he is the center. By scanning with SG, the trainee will try to detect differences in signal qualities caused by differing textures of the pole and the person respectively. The SG will be turned off while props are being positioned.

Purpose: Test trainee's ability to detect differences in signal quality caused by differences in texture of the objects producing the signal.

Equipment

	4
	1

(SG)

Test Date: ________

Re-Test Date: ____

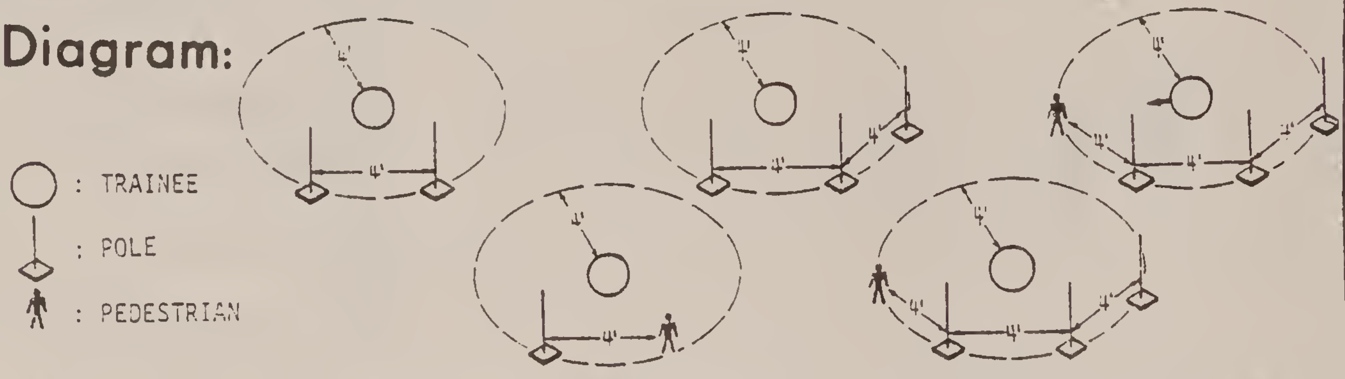
____

Specify 'Helping Steps' Used: ____

____

(F01)

Diagram:



Examiner's Instructions

Position trainee in the center of an imagined circle of 8' diameter. On the circumference place 2 poles, 4' apart. SAY: "You're in the center of a circle. Around you are some objects. I'd like you to turn in place."

>SAY: "Make several slow 360° turns. Listen to the SG signals. Then tell me whether the signals from the objects sound the same or different from each other."< "Are the instructions clear? Please begin." (SCORE ITEM F02)

Replace 1 pole with 1 participant. Repeat above instructions occurring between>< 's. (SCORE ITEM F03)

Replace participant with pole and add 1 pole, so there are 3 poles on circumference. Repeat instructions between ><'s. (SCORE ITEM F04)

Leaving the 3 poles where they are, have participant take a place on circumference. Repeat instructions between ><'s. (SCORE ITEM F05)

If trainee says objects sound different, SAY: "Scan once more, then turn so that you are facing the object which sounds different, and stop." (SCORE ITEM F06)

Criteria	Test	ReTest
F02 Trainee says objects sound the same		
F03 Trainee says objects sound different		
F04 Trainee says objects sound the same		
F05 Trainee says objects sound different		
F06 Trainee turns to face participant		

Notes/Remarks: (F07)

____

____

MATCHING TRIAL: 7

(M5)

Setting: Part A: Verbal.
Part B: Indoor. Large, obstacle-free room.

Conditions: Part A: Trainee will try to think of how SG use might inform him on the height of an object.

Part B: Trainee will scan to detect 2 poles and scan each pole for height (vertical scan) to determine which is taller. Poles will be 4' ahead of him, the 7' pole 2' to his right, the 4' pole 2' to his left.

Purpose: Part A: Test trainee's ability to creatively use the SG as an environmental sensor.

Part B: 1) Test trainee's ability to detect lateral objects via horizontal scan. 2) Test trainee's ability to detect differences in objects' height via vertical scan.

Equipment

	1
	1

1 4' pole, (SG & telemetry monitor)

Test Date: ______

Re-Test Date: ______

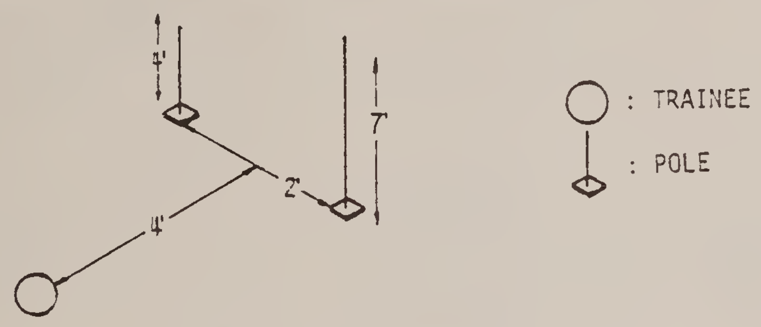
______

Specify 'Helping Steps' Used: ______

______

______ (G01)

Diagram:



Examiner's Instructions

Part A: SAY: "Now you've had some experience detecting and locating objects with the SG, I'd like you to think about whether or not you could use the SG to get information on the height of an object. If so, how would you do this? Think about it a few minutes, then give me your answers. Are the instructions clear?" (SCORE ITEMS G02 - G03 AFTER TRAINEE GIVES HIS ANSWERS.)

Discuss technique and purpose of vertical scan with trainee.

Part B: Position poles and guide trainee to starting position 4' from them. SAY: "Now I'd like you to use the vertical scan in combination with the horizontal scan you've use in previous exercises. There are 2 poles ahead of you, 1 to your left, 1 to your right. Locate them by scanning horizontally, then do a vertical scan of each pole to get an idea of its height. Are the instructions clear? Please begin." (Trainee scans.) (SCORE ITEMS G04-G05) SAY: "Are both poles the same height?" If trainee says "no," SAY: Is the tallest pole on the left or the right?" Allow trainee to scan again before answering. (SCORE ITEMS G06-G07)

Criteria	Test	ReTest
G02 Trainee says he could use SG for height information		
G03 Trainee describes vertical scan technique (he need not so term it)		
G04 Trainee locates both poles via horizontal scanning		
G05 Trainee performs vertical scan of each pole		
G06 Trainee says different heights		
G07 Trainee says tallest pole is on right		

Notes/Remarks: (G08)

______

______

MATCHING TRIAL: 8

(M5)

Setting: Indoor or outdoor. Large obstacle-free area.

Conditions: The trainee will do a horizontal scan with the SG to locate the first pole. As he walks, trainee will try to pass the first pole directly ahead of him, by keeping it on his left. He will then pass a 2nd pole by keeping it to his right (see diagram). The long cane will not be used during this exercise.

Purpose: (1) To test trainee's ability to detect and locate objects through horizontal scanning with SG.
(2) To test trainee's ability to adjust his line of travel for desired spatial relationship with object located by scanning with SG while in motion.

Equipment

⚲	2
🪑	
⊙	1
🚶	

(SG)

Test Date: ______

Re-Test Date: ______

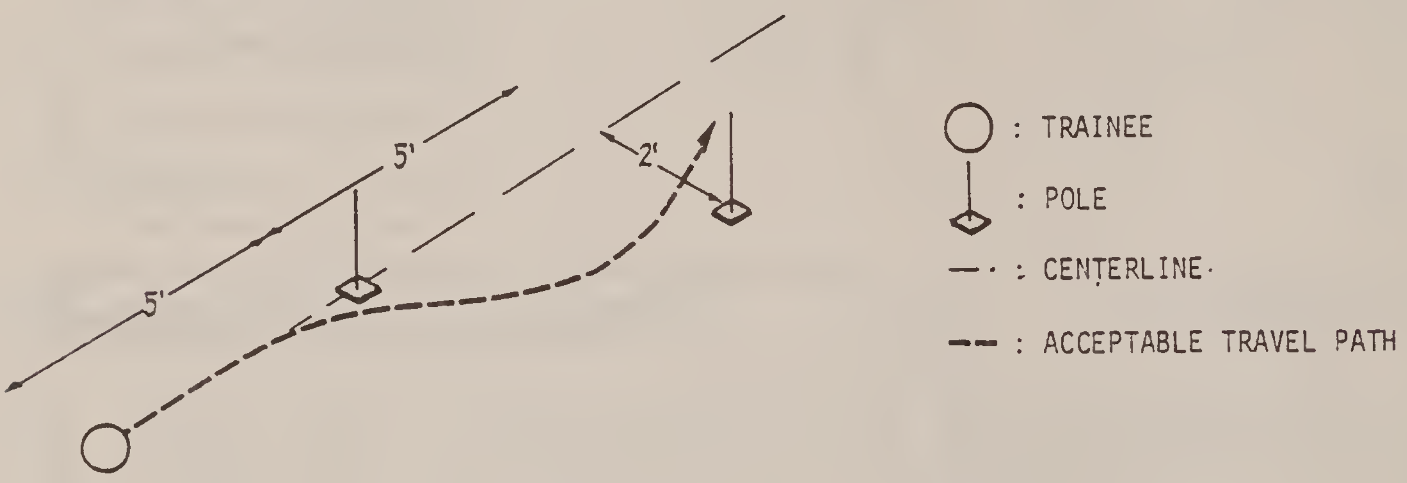
______

Specify 'Helping Steps' Used: ______

______

(H01)

Diagram:



Examiner's Instructions

Guide trainee to starting position about 5' from 1st pole. SAY: "There is a pole ahead of you. I'd like you to locate it by scanning with the Sonicguide. After you locate it, approach it and walk past it keeping it on your left. As soon as you have passed it, start scanning for a 2nd pole. Pass the 2nd pole, keeping it on your right. Try not to make contact with either of the poles. Are the instructions clear? Please begin." (SCORE ITEMS H02 - H06 AS TRAINEE EXECUTES EXERCISE)

Criteria	Test	ReTest
H02 Trainee detects and locates 1st pole		
H03 Trainee passes 1st pole, keeping it to his left		
H04 Trainee locates 2nd pole		
H05 Trainee passes 2nd pole, keeping it to his right		
H06 Trainee avoids body contact with poles		

Notes/Remarks: (H07)

______

______

MATCHING TRIAL: 9

(M5)

Setting: Outdoor. Sidewalk with no pedestrian traffic.

Conditions: Trainee will walk about 25' along sidewalk, attempting to detect, via SG signals, and appropriately respond to 2 overhangs in his path. The 1st overhang will occur at 10', the second at 20'. The 1st overhang will enter the trainee's path from his right, the 2nd overhang from his left (see diagram). Long cane will be used.

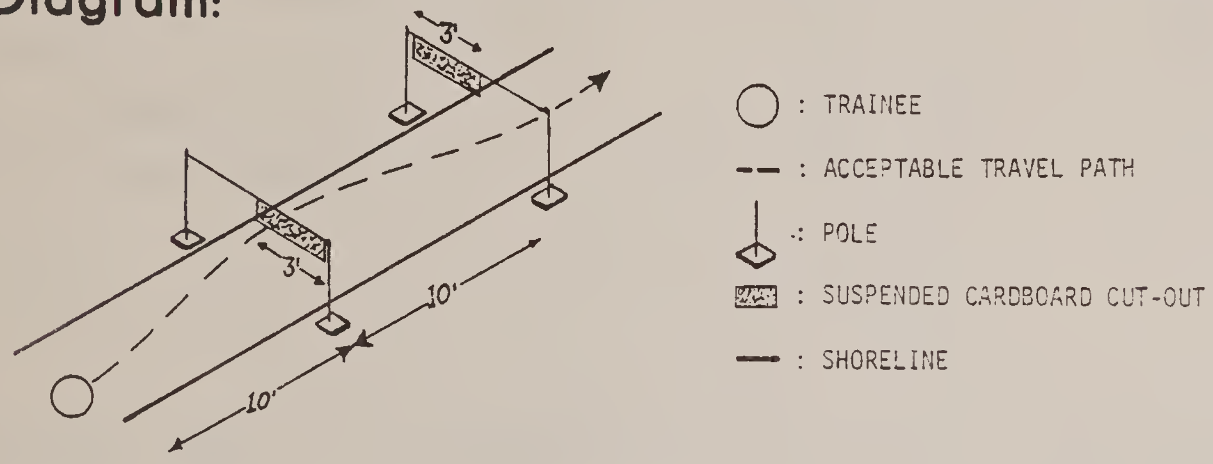
Purpose: To test trainee's ability to interpret and respond appropriately to SG signals indicating an overhang.

Equipment

⫯	4
🪑	
⊙	
🧍	

Twine; trainee's long cane; 2 cardboard cutouts, 1'x3'; clothes pins. (SG)

Diagram:



Test Date: ______

Re-Test Date: ______

______

Specify 'Helping Steps' Used: ______

______

(I01)

Examiner's Instructions

At 10' from the starting point, place 2 poles, 1 on either side of the path. At 20', place 2 poles, one on either side of the path. Run a piece of twine from the 1st to the 2nd pole, so that it crosses the travel path. Using 3 of the clothes pins, suspend 1 cardboard cutout from the twine over the path. Do the same thing with the 3rd and 4th poles. (Suspend the cutout by its 3' side.)

Provide trainee with 5 minutes instructions and practice in detecting and avoiding overhangs via SG use, and in the proper modified self-protective technique to be used in passing overhangs. Then guide trainee to starting position and SAY: "I'd like you to walk forward along this sidewalk. If you detect any overhangs, try either to avoid them or to pass them using the appropriate self-protective technique. Are the instructions clear? Please begin." (SCORE ITEMS I02 - I05 AS TRAINEE EXECUTES EXERCISE.)

Criteria	Test	ReTest
I02 Trainee detects 1st overhang via SG signal		
I03 Trainee avoids or passes 1st overhang, using proper technique		
I04 Trainee detects 2nd overhang via SG signals		
I05 Trainee avoids or passes 2nd overhang, using proper technique		

Notes/Remarks: (I06)

______

______

MATCHING TRIAL: 10

(M5)

Setting: Large, obstacle-free room

Conditions: The trainee will try to avoid obstacle contact as he walks up to sound-source 30' distant, making body contact or cane contact with it. Obstacles will be 3 poles and 2 stacks of cartons, side-by-side placed between the trainee and the sound source (see diagram).

Purpose: Test trainee's ability to respond to SG signal for purposes of obstacle detection and avoidance.

Equipment

	3

3 stacks cartons
1 radio (SG)

Test Date:________

Re-Test Date: ____

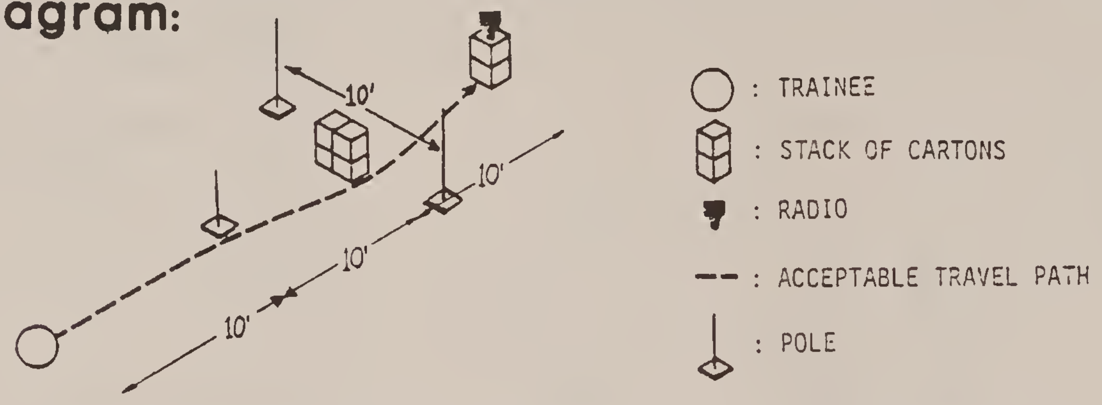
____

Specify 'Helping Steps' Used: ____

____

(J01)

Diagram:



Examiner's Instructions

Guide trainee to position about 30' from sound-source. SAY: "I'd like you to walk up to the sound-source and make contact with it. Try to use SG signals to avoid making cane-contact with any obstacles which may be in your path. Are the instructions clear? Please begin."
(SCORE ITEMS J02 - J04)

Criteria	Test	ReTest
J02 Trainee avoids contact with poles		
J03 Trainee avoids contact with obstacle cartons		
J04 Trainee makes contact with the sound source		

Notes/Remarks: (J05)

MATCHING TRIAL: 11-Interview

(M5)

Setting: Verbal

Conditions: The trainee will express some of his subjective reactions to the SG, based on his experience with it during Matching Trials: SG 1-10."

Purpose: To find out if, at this point in his exposure to the SG, the trainee has developed any strong positive or negative reactions to it, and/or any opinion as to its potential usefulness for him personally in travel.

Equipment	

Test Date: ________

Re-Test Date: ______
N/A

Specify 'Helping Steps' Used: ______
N/A

(K01)

Examiner's Instructions

Familiarize yourself with the items before beginning exercise. Find a place where you and the trainee can have a relaxed discussion. Tell the trainee that you wish to get his personal reactions to the SG. Initiate an informal discussion. During the discussion, be sure to get answers for each item - by asking direct questions if the answers are not spontaneously given.

Notes/Remarks: (K02)

Criteria	Test	ReTest
K03 How does trainee feel about the signal display; does trainee feel the "extra" information would be of interest to him and helpful in his travel, rather than superfluous or confusing?		N/A
K04 Does trainee feel the SG is "cosmetically" acceptable?		
K05 If the trainee would plan to take off the SG equipment after reaching travel destination (school, work, etc.), would he find it convenient to store and keep track of it until needed for further use?		
K06 Can trainee think of at least 2 travel situations he now encounters in weekly travel in which the SG would be useful in addition to the long cane?		
K07 Does trainee think the SG is sufficiently comfortable to wear for periods of up to 1 hour?		
K08 Does the trainee think potential benefits of SG are worth the amount of time he would need to learn its use?		
K09 Does the trainee think that, with the SG, he would expand his travel to include some places to which he does not travel with the long cane?		

S.G. HELPING STEPS

Apply to P.T. #

1. a. Check trainee's posture. Head erect, not picking-up strong signal from floor.
   b. Caution trainee against scanning from side-to-side while trying to determine arm's-reach distance.
   c. Monitor as trainee approaches wall/pole to detect other trainee behavior which may distort signal.
   d. Using monitor, have trainee approach wall, stop him when he reaches arm's-reach distance. Remind trainee that signal pitch drops as one becomes nearer to object. Have him stand at arm's-reach distance and then alternately lean slightly towards wall and away from wall and return to upright position. This will help him "isolate" his arm's-reach distance signal.

2. a. Be sure trainee is *not* actively scanning (turning head).
   b. Use monitor to ascertain that participants are far enough to the side to initiate clearly lateral signal.
   c. Let trainee drill with pole at about arm's-reach distance. Have him center it then put it alternately on his left and right. Initially interpret signals for him.
   d. Check trainee's audiogram for unilateral hearing loss.

3. a. Be sure trainee is facing forward as he attempts to parallel wall, and *not* turning his head towards wall.
   b. Be sure trainee understands that it is signal *pitch* which informs him of distance from object, and that in trying to parallel a shoreline he must try to keep the signal pitch constant.
   c. Have trainee face perpendicular wall and then make a 90-degree right turn. Discuss concomitant changes in signal. Repeat with trainee making left turn.

4. a. Discuss signal pitch-distance relationship with trainee.
   b. Use the monitor during the exercise to detect any other source of confusion.

5. a. Be sure trainee is doing a broad enough scan. You may discuss breadth of scan in terms of "shoulder-to-shoulder, chin-to-shoulder," etc., for purposes of clarity.
   b. Provide 5 minutes instruction and monitored practice in scanning 2 poles placed side-by-side.
   c. Remind trainee that sound is equal in both ears when one is looking directly at an object and there are no other objects in range.

6. a. Be sure trainee takes adequate time to study signal produced by each separate object.
   b. Allow trainee to scan objects several times before making his decision.
   c. Suggest that trainee include at least one rapid scan, so that signals closely follow each other, facilitating comparison.

7. a. Provide trainee 5 minutes of monitored instruction and practice in vertical scanning. Be sure trainee remains directly focused on pole as he vertically scans it.
   b. Place the 4' and the 7' pole about 2' apart and about 3' ahead of trainee.

8. a. Remaind trainee that he should start scanning to locate the second pole as soon as the first pole "drops out" of the SG signal.
   b. Remind trainee that he should not and does not need to turn his head towards the first pole (after he has located it by scanning) while he is walking past it. He will know he has passed it when the SG signal from it "drops out" on his left.
   c. Remind trainee that the SG signal tells him about the distance of an object and he should use this information to help avoid bumping into either pole.

9. a. Let the trainee practice a few minutes by alternately approaching you (or some object that extends from the floor to about head-height)and also an overhang. The signal for each sounds different, and this should help him get accustomed to it.
   b. Have the trainee stand still and extend your arm in front of him at several feet distance, moving it slowly from waist height to head height and helping him interpret the signals thus activated.

SONICGUIDE SUMMARY SCORE SHEET

For each "yes" in the "Criteria" section of the Sonicguide Matching Trials, enter a check mark in the corresponding space below. Do addition and multiplication as indicated to get a combined Total Score for Matching Trials 1-10. Only addition is needed to get the Total Score for Matching Trial 11 (Critical Factors - Interview).

MATCHING TRIALS 1-10		MATCHING TRIAL 11
Primary	Advanced	Critical Factors - Interview
___ A02	___ A03	___ K03
___ B02	___ A04	___ K04
___ B03	___ B07	___ K05
___ B04	___ C03	___ K06
___ B05	___ E03	___ K07
___ B06	___ E04	___ K08
___ C02	___ G02	___ K09
___ D02	___ G03	
___ D03	___ G06	
___ E02	___ G07	
___ F02	___ H03	
___ F03	___ H04	
___ F04	___ H05	
___ F05	___ H06	
___ F06	___ I02	
___ G04	___ I03	
___ G05	___ I04	
___ H02	___ I05	
___ J02	___ J03	
___ J04		
___ Number "yes"	___ Number "yes"	___ Number "yes"
x 2 ___ (L01) ___	x 3 ___ (L02) ___	TOTAL (L03)
___ plus	___ = ______ TOTAL	

Sonicguide Interpretation: There are no established indicators which can be used to predict how well a person may eventually learn to use this ETA. Clearly, outcomes are not only affected by the person's initial skills but also by the extent and type of training available. However, it seems reasonable to suggest the following interpretations of the scores above on a tentative basis.

Circle the appropriate numbers in the columns below.

Interpretation Key

	Primary & Advanced Level Combined Score	Critical Factors - Interview
High aptitude with this device	82 - 92 (points)	7
Moderate aptitude with this device	71 - 81	6
Low aptitude with this device	65 - 70	5
Not advisable	0 - 64	0 - 4
	(L04)	(L05)

OVERALL MATCHING SCORE SHEET

MATCHING TRIALS

- PATHSOUNDER

☐ The trainee shows high aptitude with the Pathsounder.
(01) ☐ The trainee shows moderate aptitude with the Pathsounder.
☐ The trainee shows low aptitude with the Pathsounder.

☐ The trainee expresses highly positive reactions to the Pathsounder.
(02) ☐ The trainee expresses moderately positive reactions to the Pathsounder.
☐ The trainee expresses low or negative reactions to the Pathsounder.

- NOTTINGHAM OBSTACLE DETECTOR

☐ The trainee shows high aptitude with the NOD.
(03) ☐ The trainee shows moderate aptitude with the NOD.
☐ The trainee shows low aptitude with the NOD.

☐ The trainee expresses highly positive reactions to the NOD.
(04) ☐ The trainee expresses moderately positive reactions to the NOD.
☐ The trainee expresses low or negative reactions to the NOD.

- MOWAT SENSOR

☐ The trainee shows high aptitude with the Mowat.
(05) ☐ The trainee shows moderate aptitude with the Mowat.
☐ The trainee shows low aptitude with the Mowat.

☐ The trainee expresses highly positive reactions to the Mowat.
(06) ☐ The trainee expresses moderately positive reactions to the Mowat.
☐ The trainee expresses low or negative reactions to the Mowat.

- LASER CANE

☐ The trainee shows high aptitude with the Laser Cane.
(07) ☐ The trainee shows moderate aptitude with the Laser Cane.
☐ The trainee shows low aptitude with the Laser Cane.

☐ The trainee expresses highly positive reactions to the Laser Cane.
(08) ☐ The trainee expresses moderately positive reactions to the Laser Cane.
☐ The trainee expresses low or negative reactions to the Laser Cane.

- SONICGUIDE

☐ The trainee shows high aptitude with the Sonicguide.
(09) ☐ The trainee shows moderate aptitude with the Sonicguide.
☐ The trainee shows low aptitude with the Sonicguide.

☐ The trainee expresses highly positive reactions to the Sonicguide.
(10) ☐ The trainee expresses moderately positive reactions to the Sonicguide.
☐ The trainee expresses low or negative reactions to the Sonicguide.

PROFILE FOR MATCHING WITH ELECTRONIC TRAVEL AIDS

	High Ratings	Moderate Ratings	Low Ratings
Use of Pathsounder	○	○	○
Reactions to Pathsounder	○	○	○
Use of Mowat Sensor	○	○	○
Reactions to Mowat Sensor	○	○	○
Use of Nottingham Obstacle Detector	○	○	○
Reactions to Nottingham Obstacle Detector	○	○	○
Use of Laser Cane	○	○	○
Reactions to Laser Cane	○	○	○
Use of Sonicguide	○	○	○
Reactions to Sonicguide	○	○	○

Which device or devices match best with the candidate?

____

____

______________________ (01)

NOTE: Before making a final match with an ETA, review the Selection Considerations for factors that could be influential in making the choice.

Comment: ______________

____

____

______________________ (02)

HV1708 DeHaas, Carla and c.1
D366 Robert A. Weisgerber.
Se48 ENVIRONMENTAL SENSING,
SELECTION AND MATCHING.
(1978)

DATE DUE

Reference Copy

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